ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 16, Issue, 04, pp. 27697-27706, April, 2024
DOI: https://doi.org/10.24941/ijcr.46944.04.2024

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

REVIEW ARTICLE

A RELOOK ON REPORTS OF STUDIES AND AUDITS OF PUC CERTIFICATION THROUGH THE CONCEPT OF CONTROLLABILITY": AN INNOVATIVE APPROACH

[1,*]Om Parkash Kapoor and [2]Dr. Anil Chandhok

[1]Research Scholar, University School of Business, Chandigarh University, Gharuan, Mohali, Punjab
[2]Professor, University School of Business, Chandigarh University, Gharuan, Mohali, Punjab

ARTICLE INFO

Article History:
Received 24th January, 2024
Received in revised form
20th February, 2024
Accepted 19th March, 2024
Published online 17th April, 2024

Key words:
PUC Certification Process, On-road Vehicle Emissions, Non-conformances, Continual Improvement, Organization Structure, Controllability.

***Corresponding author:**
Om Parkash Kapoor

ABSTRACT

Purpose: Govt. of India, Ministry of Roads Transport & Highways (MoRTH) **;** established PUC (Pollution Under Control) centers in all states**,** under their I&M (Inspection & Maintenance) program following CMVRs (Central Motor Vehicles Rules) 1989**,** to test on-road vehicle's tail pipe emissions and issue PUC certificate to a vehicle which complies with BS IV or BS VI emission standards. The purpose of PUC is to control vehicular air pollution. The PUC centre could not function appropriately and failed to control the vehicular air pollution as brought out by studies and audits during the intense literature review. Various studies and audit reports gave observations and non-conformities (NCs) to PUCcentre. Had those observations and NCs been separated into management and worker controllable, then those might have been dealt with appropriately so as to bring improvement in the PUC certification process and kept vehicular pollution under control. Air pollution is recognized as a pressing sustainability concern.

Design/Methodology/approach: Use of Concept of controllability paves the way for data of non conformances reported by study reports or audits to be separated into management controllable and worker controllable for their implementation. Secondly using relative authority levels and reporting lines, the organization structure is formulated to make it useful for coordination of employees in the PUC activity. In the Organization, Manager in any activity or function is responsible to put controls on the activity to produce a product or service which must be meeting fitness for purpose. Meeting fitness for purpose constitutes (i) Meeting customer needs (ii) Protecting human safety and (iii) Protecting the environments.

Findings: The key findings are that (i) 20 to 30 % of non conformities are worker controllable and (ii) 70 to 80 % are management controllable. (iii) Existing org structure needs breakthrough as it lacks in depicting the means to manage across it like relative authority levels.

Originality Of the study: Application of this concept for separation of defects/NCs into management & worker controllable, bring out performance gaps challenging the manager for actions which leads to improvement of performance. This is the uniqueness of this study that performance gaps appear which can be worked out for their remedy.

Significance of findings: Regional Transport Office (RTO) is the management for 70 to 80% of non conformances of PUC. Remedy of these certainly improves air pollution control process. Similarly PUC Operator owes 20 to 30 % of defects. Removal of these leads him to do right certification of vehicle emissions. This innovative approach, even if, applied today may put PUC on the path of continual improvement thus saving human lives and protecting the environment.

Citation: ***Om Parkash Kapoor and Dr. Anil Chandhok.*** **2024.** "A Relook on Reports of studies and Audits of PUC Certification through the Concept of Controllability": An innovative approach*". International Journal of Current Research*, 16, (04), 27697-27706.

INTRODUCTION

Pollution Under Control (PUC) Centre certification of on-road vehicles' emissions is a topic talked not only in media for its dismal performance but has become a great concern for the Govt and citizens particularly of metro cities like Delhi, Apex Court is in the limelight and supervising to bring improvements in its norms of working through EPCA (Environment Pollution (Prevention and Control) Authority) for the National Capital Region, and NGT (National Green Tribunal). The vehicular pollution has been identified as one of the major contributors for air quality degradation in the metro cities of India (CPCB /PROBES/136/2010). Many citizens' lives are lost due to the effect of air pollutants (UN Report) indicating high health costs. On the other hand more and more enforcements in the form of regulations are put into

for improvement in PUC working. When any activity, department or for that matter any organization does not perform as per the plan or expectations, we start digging up the past. Or someone may suggest or propose the audit of that activity or organization as an immediate measure.

Number of queries or questions may arise to know the cause of under-performance. Audits can be arranged and carried out but the main matter is the implementation of audit recommendations, or for that matter findings. That is what might have happened in the past also. May be, the activity at the PUC centre is looking upward in their regulations governance to redress its drawbacks or deficiencies. Similar can be the case with the upper management like RTO/STA or regulatory authorities looking downward at PUC centre for improvement in performance. It is definite that all other stakeholders may like to see PUC as an activity having sound operational quality system to deliver PUC certificate effective in controlling the pollution. The low performance may be attributed to management as well as workforce. Low performance may not be desirable since the product that is PUC certificate must be meeting 'fitness for purpose'**.** Product/Service is fit for its purpose if it is able to protect human safety and environments (Juran on what leaders need to know about quality**)**.

The studies or audits of PUC centre have brought out much non-conformity for PUC. These Non conformities can be called as defects or variations in six sigma language. These defects need to be remedied so as to bring breakthrough in performance of PUC.

Overview of PUC structure and its functioning

Overview: Under the Central Motor Vehicle Act, 1988, vehicular emission standards to be implemented vide Central Motor Vehicle Rules (CMVRs), 1989, authorizing the central government to regulate and enforce them. The Ministry of Road Transport and Highways (MoRTH) is, therefore, responsible for enforcing compliance. They have delegated the powers to state transport authority (STA) in each state of the country for implementation of CMVRs for vehicles' emission standards. The Air Act 1981 and Environment (Protection) Act 1986 provide Central Pollution Control Board (CPCB) under Min. of Environment and Forests, to prescribe automobile emission standards to support MoRTH. The enforcement and compliance program for vehicular emissions consists of three main elements (i) New Vehicle Type approval (ii) Conformity of Production and (iii) Inspection and Maintenance Program (I&M) for on-road or in-use vehicles.

The Pollution under Control (PUC) regime falls under Inspection & Maintenance (I&M) program of Min. of Road Transport & Highways (MoRTH) and implemented by STA/RTO for on-road vehicles in the country. Pollution Under Control (PUC) norms for in-use Petrol/CNG/LPG Vehicles were notified by MoRTH for implementation throughout the country from 1st Oct. 2004 to comply with the idling emission standards for CO & HC in case of Petro vehicles and smoke density for diesel vehicles. (Refer CPCB Program Objectives Series. Probes/136/2010).However Transport Commissioner Mumbai initially introduced the PUC system in 1984 in Mumbai.

PUC Organization: I& M Program constitute in-use or on-road vehicle fitness testing and pollution under control (PUC) certification. I&M program is managed by Regional transport Officer (RTO) under state transport authority (STA). The existing I&M structure is described by having (i) vehicle fitness certification which pertains to checks on the safety features such as brakes, lights etc, and (ii) PUC certification for control of on-road vehicle emissions.

Vehicles safety Fitness certification is under RTO whereas PUC certification is a private entity managed through Central Motor Vehicle Rules (CMVRs) 1989 and state legalities, also by the RTO. Existing Inspection & Maintenance System in India (Source: CPCB 2010) is depicted in Fig. 1 below:

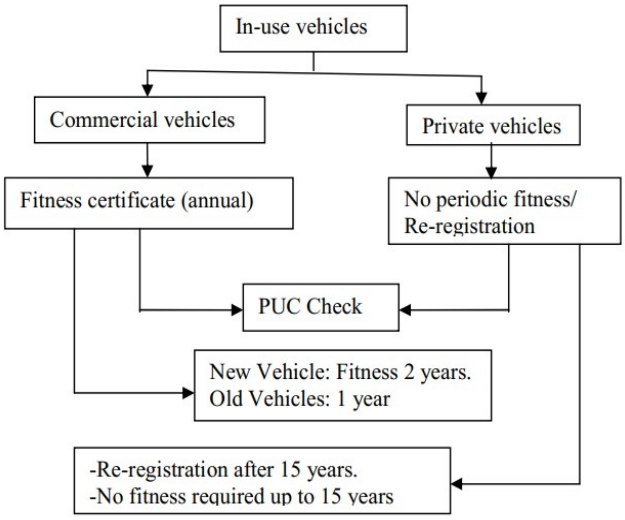

Fig.1. Existing Inspection & Maintenance System in India (Source: CPCB 2010)

This organization structure of fig 1 above seems not showing formal structure that integrates each function, setting forth relative authority levels and reporting lines.

Objectives of the study

(i)To formulate organization structure that depicts integration of each function, relative authority levels and reporting lines.

(ii)To innovatively Use Controllability Process making possible separation of non conformities/defects into categories of controllability of which the most important are (i) Worker controllable and (ii) Management Controllable defects.

Data and Data Sources

In the past, the different groups or agencies carried out studies on PUC to know the performance. Similarly audit agencies also conducted audits and found non compliances in regard to the methods; procedures etc. used by PUC during vehicles emission measurements for certification. During such courses, the non conformances observed by them were given to PUC management for action of corrections and corrective actions. That was not carried out. This all data was provided in the form of reports. But even today the status of PUC in regard to its performance, have not changed. That indicates that the non conformances data to clear the non conformities were not acted upon.

The underperformance of PUC became the cause of environment degradation and serious affects on human health. Had the data on non conformances been analysed and the action taken, then situation would have not been like, what it is today.

METHODOLOGY

The first issue is to apply the theme or idea holding manager responsible for the results of the activity which can be keyed to the principle of 'Controllability' that makes possible a separation of non conformities/defects into categories of controllability in which the most important are (i) Worker controllable and (ii) Management Controllable defects. The other issue is the organization structure. The present organization structure shown above, looks in an isolated form from other functions. This makes PUC centre appears working in isolation, because its performance had not been improving besides so much regulatory enforcements and studies. The organization structure aligns and coordinates the interdependent individual functions. The organization structure is the means to manage across it, showing relative authority levels and reporting lines.

Organization structure: The organization structure depicts organization charts and the means to manage across it. In the present organization fig. 1 above, these aspects hardly appear. The structure in fig. 1 shows vehicle safety testing and PUC certification functions.

However piercing through literature and stitching the elements gathered from the descriptions, we could come out with the following organization structure. That if you see you may find meaning of interdependent individual functions showing relative levels and reporting lines. Thus the entire I&M system falls under State Transport Authority (STA).

The PUC centre and Safety Certification function under Regional Transport Officer (RTO) of STA. The Fitness Certification is a government department but the PUC centre is functioning as a private entity. Hence the entire I&M system is like the one shown below fig. 2

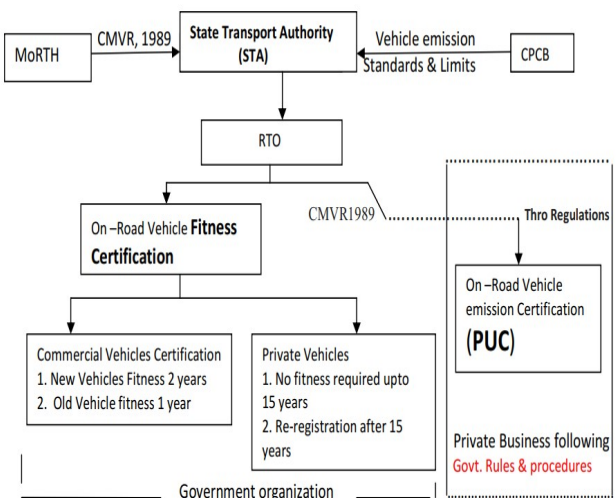

Fig. 2. Inspection & Maintenance (I&M) Structure

Controllability Process: The performance of PUC has not been leveled as satisfactory in any study or audits so far. The points brought out by the studies or audits indicate low performance of PUC. And the problem is continuing for the last more than 20 years or so.

Certainly this has become a chronic problem. But the need of the hour is to put control on it and set forth the PUC centre on improvement path. Manager in any activity or function have authority to put controls on the activity to produce a product that is PUC certificate which must be meeting 'fitness for purpose', means (i) meeting customer needs (ii) protecting human safety and (iii) protecting the environment.

In the case of PUC, governed by regulations, it is very much required to know whether the non-conformities/defects are 'Workforce controllable' or otherwise; that is 'Management Controllable'. The concept of controllability (Steven M. Doerman, Juran's Quality handbook 6th Ed.) is applied to explore this. This is depicted below in Fig 3.

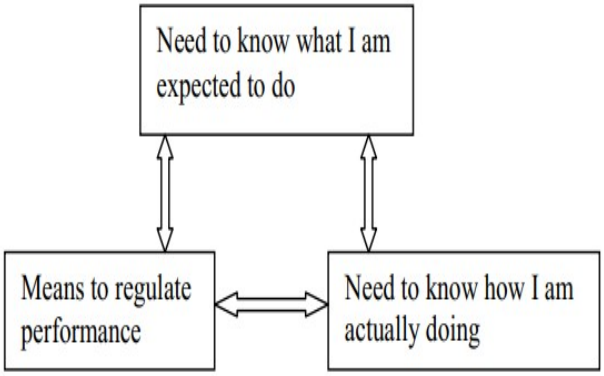

Fig. 3. Concept of Controllability

That is (i) Need to know what I am expected to do means what the worker/employee is supposed to do (ii) Need to know how I am actually doing i.e what the worker is actually doing and (iii) means to regulate performance or ability to regulate the process to minimum variations.

These three criteria's is to place the human being in a state of self control. The methodology helps to remedy defects given by studies or audits, once these are separated into the categories of Workforce controllable and Management controllable. For this purpose work sheets are used enabling us to separate the NCs. . We have taken audits report and study report for application of Controllability concept.

(i) Audit**:** January 17, 2017 and February 6, 2017, https://www.downtoearth.org.in/news/air/vehicle-inspection-programme-needs-an-overhaul-62052, or *PUC%20Challenges%20 CSE%200. 32057800_1580730430_anumita-mumbai-bsvi-readiness.pdf:* And (ii) Vehicle inspection programme needs an overhaul: Centre for Science & Environments, DTE.

PUC centre across Delhi, NCT & NCR (National Capital Region) Delhi.

(a) Delhi NCT

Sr. No.	What they are doing (PUC Centre)	What they are supposed to do(PUC Centre)	Gap	Workforce (Worker) Controllable	Management Controllable	Remarks
1	Flawed implementation a)Serious quality concerns in the way PUC tests are conducted and equipment maintained in centres across NCR	a) to do Quality Checks during certification b) Regular Equipment Maintenance	a) Monitoring & measuring a) Quality issues to be kept in view during process of PUC. 2) Equipment Maintenance schedule not there	No (i) Absence of regular Monitoring & measuring of PUC activity (ii) Initially operator needs to be trained on quality checks and provide check list.	YES. Seeing the gap (i) the management to institute monitoring & measuring (ii) train the operator and provide QC check sheet.	Training to operator and QC Checks & checklist
2.	Rampant cheating and malpractices, which includes fake software, false passes and inappropriate tests	Not to involve in such practices	First & foremost , Regulation enforcements is absent	YES b) Regulations enforcements missing. c) Standardised software to be provided. d) Absence of feedback & implementation.	YES Shows Management inaction in a) Monitoring measuring the PUC process. b) Lack of motivational measures	During establishing PUC, these needs to be part of operator training .
3	Manual recording and non-uniformity in the format of PUC data makes data retrieval and analysis difficult	Manual recording the data	Improper feedback	No	Yes If done manually the correct format need to be provided 2) Data analysis training to Operator required	The requirement is feedback and corrective actions.
4	Lax PUC norms, which rarely fail the vehicles.	Petrol vehicles are tested for CO, HC and lambda, and a smoke opacity test for Diesel vehicles.	Other tests such as NO2 etc not in the list for compliance.	QA &QC tests not there.	Yes Although tests are done at PUC, the Operator passes almost all vehicles. This is due to: a) No monitoring and measuring in PUC. b) No real time feedback there. c) No periodical audit by the management to know the PUC performance	There is a question who manages regulatory compliance. In absence of management the activity is going hay way.
5	Nearly 20 per cent of tests recorded zero values, which is not possible even the new tech. vehicles minimal carbon monoxide CO & HC	Operator to provide actual values of tests & measurement	It seems there is no training for understanding measurements in PUC operation.	No	Yes i)Training not provided ii)No monitoring & measuring of PUC process	It needs to be seen that the gaps are from the day PUC was established.

Continue ……..

Sr. No.	What they are doing (PUC Centre)	What they are supposed to do(PUC Centre)	Gap	Workforce (Worker) Controllable	Management Controllable	Remarks
6	Legal framework to monitor PUC centres	At PUC regulatory requirements are not complied with.	Non implementation of regulatory requirements	No	Yes. It is the manager who has an objective of regulations compliance	Management has an action plan to achieve the objectives.
7 Other 0bser vations.	CSE's investigation found that emissions testing probes are not even inserted in the exhaust pipe, or it remains unconnected with the computers at the time of testing to show false passes.	Testing probes to be inserted properly in the exhaust pipe, and ensure that it is connected to the computer.	Does not implement the procedure of testing	Yes Warning notice to be issued for loss of his business entity	No.	But on the part of management again the managerial actions such as QA/QC checks, monitoring & measuring, feedback of PUC actions & applying control, are missing.
8	Ill-maintained equipment, lack of documentation on calibration of equipment, poorly done tests, lack of standardised software in testing equipment	Maintain equipment, proper documentation of calibration, appropriately done test and use standrdised software	Maintenance schedule of equipment, Cal certificate of eqpt from NABL accredited lab, properly conducting the tests and use of standardized software.	Yes	No	-do-
9	Display of type approval certificate for equipment, operator training certificate, and calibration report. Some of the centres defaulting on these grounds.	Display approval certificate, training certificate and calibration certificate from NABL accredited Lab.	Not displayed (May be the operator does not have these)	Yes	No	Lack of managerial activities such as Monitoring & measuring , internal audit and QA/QC checks.
10	Lack of skilled and trained personnel in the PUC centres. The current training of two to three days imparted by equipment manufacturers is inadequate to educate the PUC operators in the technicalities of the equipments. Training is also imparted to those who are not regular operators.	Skilled and trained personnel deployment in PUC.	Training & development trg. of PUC operator	No	Yes. Contract agreement with the supplier has to be proper.	Two to three days trg is not adequate as operator need to know not only operation but understand measurements accuracy, precision, and meaning & causes of environment degradation in relation to vehicular emissions.
11	PUC must have the system of transmission of PUC data and daily feedback to PUC required (It will help curve malpractices).	Introduce automatic online network for transmission of PUC data to the central server to minimize manual interference and allow proper analysis of data for remote auditing of PUC centers.	Such a system is not there	No	Yes	
12	Improper Sensor probe insertion and then taking readings of pollutant measurements	Proper Sensor probe insertion and then taking readings of pollutant measurements	PUC operator has the opportunity to do it as per his choice.	No	Yes No monitoring & measuring, no review, Internal audit & review of performance missing	a)This is a critical to quality (CTQ)point in taking the measurements. This needs to be fool proofed. b) Probe maintenance & serviceability

(b) Haryana NCR

Sr. No.	What they are doing (PUC Centre)	What they are supposed to do(PUC Centre)	Gap	Workforce (Worker) Controllable	Management Controllable	Remarks
1	Broken non functioning testing equipment was a common sight across Rohtak. Smoke meter was not connected to the computer. Still issued a pass certificate	Not to keep non function equipment. Not connecting smoke meter with computer is wrong/ illegal practice. In such conditions issue a pass certificate is illegal.	Ethical	No (How they have obtained licence for PUC)	Yes	Such Illegal activities to be dealt strenuously.
2	PUC centre had a nonfunctioning diesel smoke met er. Still issued a pass certificate	Not to use non functioning smoke meter. Certificate to be issued when they have functional equipment proper measurements.	-do-	No	Yes Auditor say: Fake software called "certificate management programme". The diesel-testing equipment was turned off when the operator showed these readings. This is a common software found across PUC centres.	-do-
3	PUC Operators often have no working knowledge of operations. Still issue pass certificate.	In case of no knowledge they should not issue certificate.	1.May be he is not trained and not monitored	No.	Yes	a)Operator to be licensed when he has proper training. b) Illegal activities to be dealt strenuously.
4.	PUC centres still issue valid PUC pass certification using manipulative software	Issue pass certificate when they have measured, found results conforming.	Check by management not there.	No	Yes	Illegal activities to be dealt strenuously
5.	Around the state borders of NCR states, many illegal PUC centres operate.	Not to indulge in illegal practices	Missing management checks & insp.	No.	Yes	-do-
6.	Use fake software	-do-	-do-	No	Yes	-do-

(ii). Study: John Rogers, Grupo Trafalgar, Maxico city, Oct.2002,.Assessment of the pollution under control program in India and recommendations for improvement. The World Bank.

Sr. No.	What they are doing (PUC Centre)	What they are supposed to do(PUC Centre)	Gap	Workforce (Worker) Controllable	Management Controllable	Remarks
1	In study overall remark is PUC ineffectual (i) Technician determines the length of each test. Taking the reading of instrument at any time	Technician need to take the reading when it gets stabilised.	Not trained or he is careless for readings.	Yes for being careless.	Yes For training.	
	(ii) Free acceleration smoke check on Diesel vehicle, Neither rpm nor engine temp. registered	To register rpm & engine temp.	Parameter checking will be wrong	Yes	-	
	(iii) Calibration of equipment	Calibrated equipment to be used.	Cal. Schedule not there	Yes		
2	Measurement of residual and Amb Values not recorded.	Values to be recorded	Careless in taking readings	Yes	-	
3	Training	They must be trained	Training on puc	No	Yes	
4	Quality Assurance & Audits	In PUC activities quality assurance and periodical audits are required	Quality and periodical audits	No	Yes	
5	Independent body to analyse the results of emission limits to determine and or recommend changes or to analyse systematic problems.	Supervisory activity to do analysis and identify systematic problems	Identification of problem.	No	Yes	
6	During testing the probe fell out of the exhaust pipe but the operator took the reading Of Smoke density.	The PUC operator should have taken time to record time till the entrained air in pipe is out & stability ensured.	Knowledge gap in operator	Yes	No. In case operator repeatedly does this then he is deliberately doing it.	
7	Under the current system no document or info is generated for governmental use.	PUC operator should send the report of tested vehicles to higher ups.	Feed back of PUC	No	Yes Manager must ask for the report.	
8	None of the regional programs attach any importance to controlling the issued certificates & their supervising.	There need to be program for control of issued certificates and their supervising.	Management gap	No	Yes	
9.	No analysis of data collected is done	To do analysis for knowing our purpose.	Analysis of data	No	Yes	
10	The technician in PUC does not have any written procedure or documentation specifying the test to be performed.	PUC operator must have procedures & other documents for all the tests.	Test procedures & documents	Yes	Yes Because no monitoring & measuring by management.	

(iii). Audit: Report on emission testing PUC- Auditing in Jaipur Rajasthan May 09, 2011 by Central Pollution Control Board

Sr. No.	What they are doing (PUC Centre)	What they are supposed to do(PUC Centre)	Gap	Workforce (Worker) Controllable	Management Controllable	Remarks
1	Out of 63 instruments (petrol & diesel; 22 number were found not calibrated or cal expired.	Cal the instruments	Calibration	Yes	No	Management does not have regular mechanism to monitor & measure. NC is there.
2	38PUCs having AMC for instruments. 05 Nos., PUC centres were not having AMC	To keep instrument in working they need to have AMC.	Maintenance	Yes	No	-do-
3	The practice of leak test Not satisfactory at 14 PUC centres out of 48 PUCs.	Practice of leak test is necessary	Defective Testing	Yes	No.	-do-
4	Sensor probe not being properly inserted in tail pipe. (03 No. PUC centres).	Correct insertion of sensor probe	-do-	Yes Gross misconduct	No	-do-
5	Overall data handling and Reporting	At, 09 Nos PUCs it is poor	Gap for management	Yes , They must do it	Yes, They must get the data report regularly..	They must get regular reports
6	Knowledge of operators At 18 Nos PUCs, it is poor	Must have knowledge of PUC activities of testing.	Cannot perform proper testing	Yes.	Yes	No regular Monitoring from management.
7	Code of Conduct	Not Followed	May be of Knowledge or Enforcement	Yes	Yes	
8	At 16 Nos. PUCs operators were totally untrained	Must have proper training	Without training testing will be defective	No	Yes	

Summarizing the Findings

Period	**Region**	No. Of Nonconformities (NCs)	Worker or Operator Controllable (Nos.)	Management Controllable (Nos.)	Percentage	Remarks
1).Jan , Feb 2017	Delhi NCR	12	4	8	Worker Controllable=**33%** Management controllable=**67%**	Audit by CSE for EPCA
-do-	Haryana NCR	6	-	6	Worker Controllable=**Nil** Management controllable=**100%**	-do-
2). Oct 2002	Delhi, Mumbai & Others	10	4	6	Worker Controllable=**40%** Management controllable=**60%**	This was a study of PUC regime in India for world Bank
3). May 2011	Jaipur	8	01 Exclusively worker controllable	07	Worker Controllable=**12.5 %** Management* controllable=**87.5%**	Audit by CPCB under Min. of Forests & Env. * In 7 Nos issues management is also responsible along with operators.

Hence application of the concept of controllability brought out that about 70% of the defects (invariably) are attributed to the management. Whereas it is felt that the defects are mostly worker controllable.. This simple but innovative approach brings out our point that managers need to first segregate defects into categories (i) pertaining to worker/operator and (ii) pertaining to the management. Then only hand over those to workers and Management for remedial action. Analyzing the summarized findings/results makes easy to visualize the report in actual perspectives of defects which can now be given to operator of the activity.

DISCUSSIONS

(i) After the study and or audit of PUC centre, a report of their findings might have been provided to management. After their oversight, may be something done here & there, and then it might have been given to PUC Operator who could not do anything to it because of lack of knowledge and understanding.
(ii)In the review of studies, it was found that PUC operator is provided two or three days training on the work procedures & equipment operation. His basic education is Matriculation & motor mechanic or ITI diploma in automobile engineering.
(iii)With this background he took over the job of testing vehicle emissions and granting PUC Certificate. How come he may understand quality activities required in PUC like control & controllability? PUC Operator interests to enter may be that he found an opportunity to invest and earn. He might have took up this assignment without understanding the Product/service.
He needs ROI on his investments, but unaware to meet needs & expectations of interested parties like Vehicle owners, RTO, CPCB, common man etc.

RECOMMENDATIONS

Following are the gaps which evolved during application of controllability concept. This is the uniqueness of this study that performance gaps appear. These need to be worked out for their remedy.

- Observations from Audit reports: Monitoring & measuring not there, Quality issues in PUC certification activity missing, Equipment maintenance and cal schedules not there, Feedback to RTO & vice versa not there, No Understanding and knowledge of Pollution parameters, Incorrect test procedure, Inadequate training to PUC operator, incorrect Sensor/probe insertion, Issuing certificate even when equipment is defective and No management checks/inspection of PUC centre.
- Observations from Study Reports: No training to operator, Operator careless in taking the measurement readings, Cal and maintenance schedule not there, Quality checks and periodical audits missing, Feedback in PUC not there, No control of issued PUC certificates, PUC operator not having test procedure, Overall data handling not there.
- Given organization structure does not depict coordination, Reporting lines and interdependent individual functions.

CONCLUSION

The technique proposed that of controllability is simple, flexible yet very innovative to apply for segregation of non-conformances and defects for their implementation in the activity or in the organization so that organization steps forward on the path of continual improvement.

It is Simple because the technique used is simple. When working for segregation, one has to place the elements of concept in the table given below. See first and second column of the table below:

What they are doing (PUC Centre)	What they are supposed to do (PUC Centre)

Put the non-conformance in "What they are doing (PUC Centre)" in first column because they or operator at PUC has done that and therefore the NC is given. The next column you get "What they are supposed to do" which needs to be filled with right or required action. Comparing the two columns, one gets the gap in the activity. This way proceed for entire non-conformances in the report. You get all the NCs segregated into the desired categories as given. Controllability is a Flexible technique. In organizational terms it refers to an organization's ability to adapt successfully the changes you envisage to implement. The more flexible the technique, the more it will adapt to organization's environment and challenges. PUC people 'Start your analysis now', and don't delay in implementing your changes. Be ready to start in full force!. Innovative technique is the perfect methods to fix problems and the means of introducing something new way to do things. The gaps get evolved during application of controllability. Basically, it's the way to do something according to a plan, to achieve desired results.

REFERENCES

1. Centre for Environment and Energy Development (CEED), Patna, 2018. "Assessment of the Compliance of vehicles with the PUC Programme in Patna". ic.in/Docs/Varshik-Prativedan-2017-18.pdf & 12 03 20 PatnaPUC- Report-I-1.pdfhttp://transport.bih.n
2. Supplementary Report to Report No 73, (2017), "Assessment of Pollution Under Control (PUC) Programme in Delhi and NCR". The Hon'ble Supreme Court order dated January 17, 2017, and Feb 6, 2017, matter of W.P. (Civil) 13029 M.C.Mehta vs Union of India & others.
3. Pfeffer, J., & Sutton, R. I. (2013). "The Knowing-doing Gap; How Smart Companies turn Knowledge into Actions". Harvard Business Press.
4. Report on Emission testing centres, (2010-11). " PUC Auditing in Jaipur, Rajasthan". PUC_jaipur.pdf
5. John Rogers, Grupo Trafalgar, Mexico City.(2002). "Assessment of the Pollution Under control Program in India and Recommendations for Improvement". Prepared for the South Asia Urban Air Quality Management Program The World Bank.
6. Anumita Roychowdhury. (2020). "Are our cities Bharat Stage-VI ready?" Centre for Science and Environment. Mumbai.PUC%20Challenges%20CSE%200.32057800_1580730430_anumita-mumbai-bsvi- readiness.pdf.
7. Joseph Juran, Joseph A de Feo, (2017), Juran's Quality Handbook ,The Complete Guide to Performance Excellence, 6th Ed. ISBN-13, 978-1578511242.
8. ISO Geneva (2015). ISO 9001:2015, Quality Management Systems –Requirements. International Organization for Standardization (ISO). ISO 9001:2015 (iv. Rev.)
9. Anisha Raman, Shambhavi Shukla, (2018), "Vehicle inspection programme needs an overhaul". Journal 'Down

To Earth'. Centre for Science and Environments, New Delhi.

10. Gaurav Bansal and Anup Bandivadekar, (2013). "Overview Of India's Vehicle Emissions Control Program-Past Successes And Future Prospects". ICCT, Washington. communications@theicct.org
11. Saurabh Dandapat at el , (2020). "A relook at the pollution certification of in-use vehicles in India and a way forward". Asian Transport studies, .6, 2020 100020.
12. Sumit Sharma Atul Kumar (2016). "Air pollutant emissions scenario for India" © The Energy and Resources Institute.

****