



GOVERNMENT OF INDIA



Micro, Small & Medium Enterprises

सूक्ष्म, लघु एवं मध्यम उद्यम

Guidelines

**For the Implementation of
Lean Manufacturing Competitiveness Scheme
Under
Credit Linked Capital Subsidy and Technology Up-gradation
Scheme
(CLCS-TUS)**

Operational Guidelines

**Development Commissioner
(Micro Small and Medium Enterprises)
Ministry of Micro, Small and Medium Enterprises,
Government of India**



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GUIDELINES

For the Implementation of
Lean Manufacturing Competitiveness Scheme

A Component of

Credit Linked Capital Subsidy and Technology Up-gradation Scheme
(CLCS-TUS)



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ABBREVIATIONS

CLCS-TUS – Capital Link Capital Subsidy – Technology Up gradation Scheme

DC (MSME)	–	Development Commissioner (MSME)
DPG	–	Distinct Product Group (DPG is a part of an Association or existing SPV, Eligible for Scheme)
GDP	–	Gross Domestic Product
GOI	–	Government of India
IA	–	Implementing Agency
IFW	–	Integrated Finance Wing
LMC	–	Lean Manufacturing Consultant
LMCS	–	Lean Manufacturing Competitiveness Scheme
MBR	–	Milestone Based Report
MC	–	Mini-Cluster – A group of preferably 10 MSMEs (formed by new SPV or as Sub group/ DPG of an Association or Existing SPV)
MSME	–	Micro, Small & Medium Enterprises
MSME – DI	–	MSME-Development Institute
NMCC	–	National Manufacturing Competitiveness Council
NMCP	–	National Manufacturing Competitiveness Programme
NMIU	–	National Monitoring and Implementing Unit
SG	–	Sub Group (Sub Group is a part of an Association or existing SPV, eligible for the Scheme)
SPV	–	Special Purpose Vehicle
PMAC	–	Project Monitoring and Advisory Committee
T & C	–	Terms and Conditions
TCs	–	Technology Centers
QCI	–	Quality Council of India

GUIDELINES FOR THE IMPLEMENTATION OF LEAN MANUFACTURING COMPETITIVENESS SCHEME (LMCS) – Phase-II (2019)

1.0 INTRODUCTION

The Development Commissioner, Ministry of Micro, Small & Medium Enterprises (DC-MSME), Govt. of India, will implement up-scaled (2019, Phase-II) 'Lean Manufacturing Competitiveness Scheme (LMCS)', a component of CLCS-TUS for the benefit of Micro, Small & Medium Enterprises (MSMEs) during the 14th Finance Commission, after the successful completion of the Pilot Phase (initiated in 2009) and up-scaled (2013).

1.2 The basic rationale of the Government support to MSMEs for undertaking lean manufacturing (LM) is to enhance their productivity and competitiveness by reduction of wastages in manufacturing processes, inventory management, space management, energy consumption, etc. The LM techniques also result in reduction in rejection, standardization of processes, better layout of machines resulting in reduced transportation of products during manufacturing, etc. The implementation of LM techniques leads to cost reduction for MSMEs. It also has social benefits in terms of training of labour, creation of knowledge, increased labour productivity, lower input costs to other industries, introduction of new production equipment/ methods in manufacturing and development of work culture in society.

1.3 The implementation of lean manufacturing technologies in the enterprises will lead to increasing return to scale, i.e. (i) economy of scale that reduce per unit production cost and (ii) increased productivity of the enterprises (iii) enhanced competitiveness in domestic and overseas markets. Simultaneously it also leads to increased expertise in the firm in respect of better work culture, managerial competencies, etc. The scheme also leads to 'demonstration effect'.

1.4 While some organizations in the country have initiated lean manufacturing practices and have started to reap the benefits, these practices have not reached many MSMEs in the country. The concept and techniques of lean manufacturing is still novel to most of the micro and small enterprises in the country.

1.5 The pilot phase of Lean Manufacturing Competitiveness Scheme (LMCS) was launched in July 2009 in 11th FYP for implementation of Lean Manufacturing Techniques in 100 Mini Clusters and further up-scaled in 2013 for 500 Mini Clusters (consisting of 6-10 units) across the country for 12th FYP.

1.6 The scheme has been up-scaled considering the recommendations of the evaluation report conducted by All India Management Associations (AIMA). The evaluation report on Implementation of LMCS has recommended the continuation of the Scheme keeping in view benefits amounting to about 25% which have accrued to the units.

1.7 Government of India has also institutionalized National award for excellence in the field of Lean Implementation from the year 2013 onwards. The MSMEs will be encouraged to come forward to participate in the National Award as well.

2.0 SCHEME CONCEPT

2.1 **Need for Lean Manufacturing:** Ever changing globalized environment has been posing challenges of competitiveness and survival to all the constituents of the economy. It has been more so for MSMEs in the manufacturing sector. It has been noticed that units are so engaged in their day-to-

day management issues that they don't have time and resources to dedicate for a strategic understanding of the need and acquiring means of various techniques which would help them in enhancing their productivity and hence being competitive in the world markets. Lean Manufacturing is a set of techniques, which have evolved over a long period and are based on various minor to major breakthroughs that help in reducing cost and hence increase productivity and competitiveness. A list of main LM techniques with brief description of each is given below:

1. **5S System:** The 5S systems is a workplace management which helps in getting the "junk" out of the work area and set of procedures to keep it that way. 5S stands for Sort, Set in order, Shine, Standardize & Sustain.
2. **Visual Control:** Visual controls such as cartoons, charts, light signals, Lane marking on floor, Safety instructions, Warning signs, Poka-Yoke instructions etc., can be displayed all over the work place.
3. **Standard Operating Procedures (SOPs):** All verbal instructions should be converted to SOPs to remove dependency on skilled personnel in achieving required product quality level, consistency, effectiveness and efficiency.
4. **Just in Time (JIT):** It's a Japanese manufacturing philosophy to make the right product in right quantity at the right time. This almost results in zero inventory and shortest possible cycle time.
5. **KANBAN System:** In this, components are pulled by assembly or subsequent work centers and the containers are replenished with the right quantities by the previous work center, which reduces the inventory of unwanted components.
6. **Cellular Layout:** In this improved manufacturing system, family wise component completion is aimed at within the smaller self contained cell, which is a part of a big factory, as compared to operation wise completion in traditional functional layout.
7. **Value Stream Mapping:** It covers all activities, both value added and non-value added, and helps in arriving at best layout of all resources required for making the product.
8. **Poka Yoke or Mistake Proofing:** It is again a Japanese technique used to prevent errors occurring at their source of origin, and it finally leads to a 'Zero Defect' situation.
9. **Single Minutes Exchange of Dies or Quick Changeover (SMED):** Applying ingenious methods, set up time is minimized and brought to less than ten minutes; thereby smaller batches as required by the customer can be taken up for manufacturing.
10. **TPM (Total Productive Maintenance):** TPM involves operators, maintenance staff and management working together to improve overall operation of any equipment. Operators, who first identify noisy or vibrating motors, oil or air leaks, can be trained to make simple repairs to prevent major and costly break downs.
11. **Kaizen Blitz or Rapid Improvement Process:** It is an intense management programme, which results in immediate change and bottom line improvement. Both management staff and workers are involved in this.
12. Other Lean Techniques on need basis, etc.

3.0 OBJECTIVES OF LEAN MANUFACTURING SCHEME:

3.1 The objectives of the Scheme is to enhance the manufacturing competitiveness of MSMEs through the application of various Lean Manufacturing (LM) techniques by;

- ✓ Reducing waste;
- ✓ Increasing productivity;
- ✓ Introducing innovative practices for improving overall competitiveness;
- ✓ Inculcating good management systems; and
- ✓ Imbibing a culture of continuous improvement.

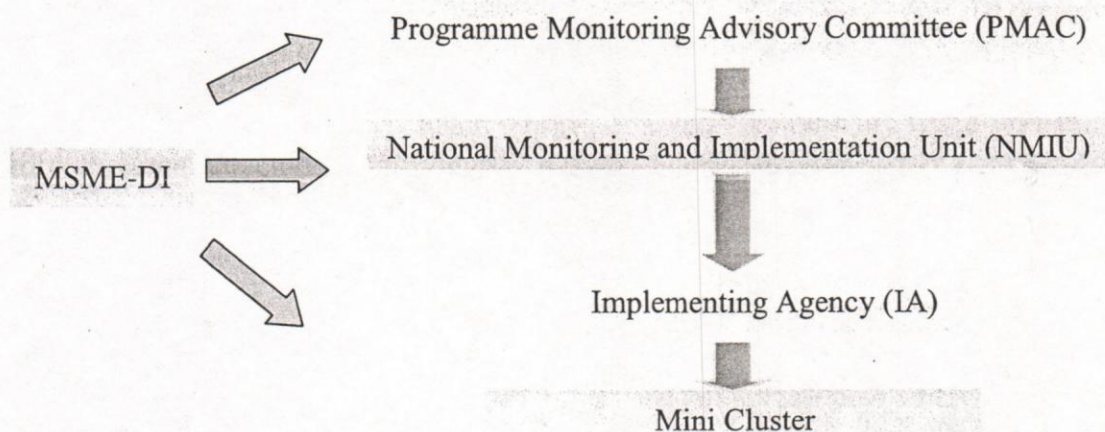
3.2 The general approach of the scheme involves engagement of Lean Manufacturing Consultants (LMC) to work with selected MSMEs in the chosen clusters with financial support by the Government. Under the Scheme, MSMEs will be assisted in reducing their manufacturing costs through proper personnel management, better space utilization, scientific inventory management, improved process flows, reduced engineering time and so on with the application of LM techniques. The Scheme supports initiative to reduce “waste” in manufacturing and promote Zero Defect Zero Effect manufacturing.

3.3 The interventions lead to increase in competitiveness of the individual units i.e. They can manufacture better quality products with less cost by improvement in process flow, standardization of process, reduction in waste, processing time, etc. The extent of tangible benefits depends upon the scope of improvement, benchmarking, involvement of the entrepreneurs/units. All these aspects are studied and included in the Diagnostic Study Report which is prepared by the LM Consultant at the start of the interventions at the field level. Incremental improvements are verified by the NMIU now set up at DC, MSME office.

4.0 Implementation Arrangements:

4.1 The scheme will be implemented in Mini Clusters spread all over the country for all manufacturing sectors. It is expected that once MSMEs are introduced to the benefits and savings that accrue from LM techniques, they would themselves continue the Scheme at their own expense. To ensure effective and successful implementation of LMCS, need based awareness program(s) will be organized so that the potential participants may assimilate the scheme provisions and only likeminded entrepreneurs join together for effective implementation of the scheme.

4.2 A three tier structure has been proposed in the Scheme. A Mini Cluster (MC) would be formed at the lowest tier. The units of the MC would work with the assigned LMC to implement the specific LM Techniques. The next higher level tier, National Monitoring and Implementing Unit (NMIU) will be responsible for facilitating, implementation and monitoring of the scheme. At the highest level, PMAC will provide overall direction to the Scheme and will be headed by the Development Commissioner (MSME). The implementation framework of the scheme is given below:



4.3 Mini Cluster (MC) – Mini-Cluster is a group of 4 or more MSMEs located within an identifiable and as far as practicable, contiguous area and manufacturing same/similar products. However, dissimilar products may also be allowed in justified cases like heterogeneous clusters for ST/SC/Women/general clusters. A mini cluster may be formed as a Sub group/ DPG of an Association or New or Existing SPV. MSMEs will be mobilize/motivated to avail the benefits of scheme through awareness programmes and National Workshops. MSMEs are expected to assess the suitability of forming a Mini Cluster by exploiting the benefits of synergy, collective bargaining and economies of scale. The scheme may be availed by existing Special Purpose Vehicle (SPV) by bringing in suitable changes in the mandate of the SPV. In case SPV is not available in the cluster, the scheme may be availed through another legal entity i.e. concerned association by grouping the MSMEs in the form of Distinct Product Groups (DPGs) or Sub Groups. DPG and SG will be small groups within the Association or existing SPVs, formed with the approval of Management of SPV or Association as the case may be. More than one DPG / SG may be formed within one association or cluster. A MC will consist of ideally 4 or more MSMEs. All the units of the MC would work with the assigned LMC to implement the specific LM techniques. In case the scheme is being availed by SPV (existing or new), a separate joint Bank Account will be opened in a National Bank for receiving the funds from the government under this scheme. In case DPG / SG is formed for taking benefit of the scheme, the project specific account will be operated jointly by Head of the SPV or Association and the Nodal Officer of the DPG / SG. The units which have availed benefits in the pilot phase as well as up-scaled (2013) will not be allowed to take benefit in the up-scaled, Phase-II (2019) scheme.

4.3.1 Special Purpose Vehicle (SPV): SPV may be:

- “Trust” as per the Indian Trust Act, 1882 or any similar Trust Act or
- A private limited company incorporated as per Indian Companies Act, 1956 or
- A “society” under The Societies Registration Act, 1860 (including any of state equivalent) or
- Distinct product groups (DPG)
- Any similar entity as approved by PMAC from time to time.

4.3.2 The MSMEs would be required to sign a MoU among themselves. Draft MOU shall be finalised by NMIU and approved in PMAC. MoU should, inter alia, cover the following points:

- a. Collective and joint responsibility of units;
- b. Details of SPV or any other form of association for receiving Government of India funds/ grant from the NMIU;
- c. Undertaking to adhere to Terms and Conditions of the Scheme;
- d. Undertaking to co-operate and work in collaboration with LMC;
- e. Undertaking for periodic reporting on progress to NMIU and may continue to implement LM Techniques after the completion of project under the scheme.

f. Appointment of a nodal officer to be the authorized signatory and single point of contact.

4.3.3 Mini Cluster would be assisted by the field Agencies of DC office namely MSME DI/TCs.

4.3.4 A nodal officer (from beneficiary side) would be identified to be a point of contact for all requirements of the Scheme. He would also be authorized signatory on behalf of the Mini Cluster and a Power of Attorney would be signed to that effect, as per the format approved by PMAC.

4.4 National Monitoring and Implementing Unit (NMIU) – National Monitoring and Implementing Unit (NMIU) will be responsible for facilitating, implementation and monitoring of the scheme. NMIU will be setup at the office of DC(MSME) and will function as the MSMEs outsourced project 'Control Room'. It will monitor every stage of the programme on behalf of the Development Commissioner (MSME). Proper monitoring mechanism for each cluster including cluster audit will be developed by NMIU for the scheme based on past experiences.

4.5 Implementing Agencies: MSME DIs, TCs, State governments and its organizations/agencies; Central government ministries and their connected agencies/organizations; technical institutions; Industry Associations; Social enterprises; in addition to the current QCI and NPC shall function as Implementing agencies for the programme. These IAs will discharge day to day activities for smooth and effective implementation of the project. IAs will coordinate with LMC, cluster units, concerned associations, and NMIU. LMCs and IAs will submit progress report to NMIU which in turn will send consolidated report to the office of DC, MSME. The end of the project reports may be prepared to show the tangible results obtained during the implementation of the LM interventions. The indicative parameters for tangible benefits as applicable may be benefits of specific projects undertaken during LM implementation, Growth in Turnover/ exports, change in Inventory, reduction in rejection rate, saving in space utilization, Growth in Profit margin, etc.

4.6 Lean Manufacturing Consultants:

- a) An Individual or a Consultancy Firm (National or International) duly registered with or certified by a reputed certification agency in the field of manufacturing technology, quality control etc., would be an eligible entity to participate in the Scheme as a LMC.
- b) It will be sole responsibility of IA to appoint and assign LMC to identify MC. IAs will obtain the approval of the PMAC for the criteria for empanelling the LM Consultants.
- c) LMCs may be required to undergo Orientation Programme/Meet organized by IAs. IAs would organize the Orientation Programme for the benefit of empanelled LMCs.
- d) MoU shall be signed between IA and MC.
- e) Payment to consultant shall be given by IA on the basis of completion of specific milestones described in diagnostic study report
- f) In case the beneficiary MSMEs or NMIU is not satisfied with the progress of lean implementation, IA shall allot a new LMC to the MC under intimation to NMIU.
- g) Allocation of work to LMCs will be made in accordance with norms approved by PMAC from time to time.

4.7 Responsibilities of LMC:

- a) Assess the existing system at each member unit of the concerned MC;
- b) Diagnostic Study Report for each cluster shall be prepared by assigned LM Consultant. The report includes measurable targets with respect to baseline data. The baseline data and monitorable incremental improvements may be different for each unit.
- c) Stipulate detailed step by step procedures and schedules for implementation of the LM techniques (pre-defined milestones);
- d) Identify the end targets in quantified parameters to be achieved by each unit at the end of the Scheme;
- e) Work in close co-operation with each of the units to assess and then achieve the LM techniques implementation; and
- f) Respond to specific queries raised by SPV or NMIU on its performance.
- g) To attend orientation/meet /re-orientation programme organised by NMIU/IA so as to clarify scheme implementation related doubts, if any and to share their experiences with peers and also to update LMCs with the developments in the field. The cost of conducting workshops would be borne under the scheme.
- h) Conduct Monthly Review meetings of Cluster Units to have experience sharing
- i) Conduct inter-company visit to promote Learning by sharing.

4.8 International Consultant/Study of Global Best practices/International Training/Fairs:

- 4.8.1 NMIU/IAs shall organize visits to some good international institutions for LMCs/MSMEs/ministry officials to get exposure to international experiences/best practices.
- 4.8.2 Approval from PMAC shall be taken on case to case basis.

4.9 Implementation Period:

- 4.9.1 The implementation period will be as may be prescribed for each Mini Cluster to complete Diagnostic Study, implement the action plan, verify the incremental stages, submission of final report etc. The beneficiary units may follow the LM techniques after the exit from the Government of India programme. Performance of Implementation of LM Techniques will be divided into 5 milestones. Each milestone is verified in audit before release of funds to LM Consultant.

- **1st Milestone** (2 months): – Completion of Cluster Specific Diagnostic Study Report (DSR). DSR includes
 - Existing status (5s, workspace management, Safety, health, energy conservation, Single Minutes Exchange of Dies, Total Productive Maintenance, Reduction in Inventory, Organization Structure, Layout, process of manufacture, visual base line survey, identification of 7 wastes, inventory practices, top chronic problems, etc.). Proforma for DSR shall be developed and approved in the PMAC.
 - Time bound targets for achieving Incremental Improvements.
 - Phase wise Action Plan
 - Qualitative, quantitative, monetary benefits likely to be achieved.
- **2nd to 5th Milestones:** - Incremental Improvements to next stage on the scale of 1 -10. Each milestone is divided into 4 months period.

- 4.9.2 The units will be in touch with LMC for building on the gains occurred during the implementation phase by monthly meeting of Cluster Units and inter-unit visits. LMC in close

coordination with the Mini Cluster will document/ prepare before and after status of various parameters. The documentation will be in form of case study, photographs, videos, etc. The documentation will be submitted to the NMIU through IA from time to time as prescribed. The first (Milestone Based Report - MBR-1), Third (MBR-3) and last mile stones (MBR-5) in respect of Mini Clusters will be audited jointly by NMIU and IA.

4.9.3 Audit procedures shall be laid down by NMIU and approved by PMAC.

5.0 COVERAGE AND ELIGIBILITY: The Scheme is open to all Micro, Small and Medium Manufacturing Enterprises throughout the country. The units should be registered with Ministry of MSME U.A.M. (Udyog Aadhaar Memorandum). The units are required to form a MC ideally of 10 units (minimum 4) in any of the forms as detailed at para 4.3 above to participate in the Scheme.

6.0 Project Monitoring and Advisory Committee (PMAC): At the highest level, PMAC will guide, review, monitor and provide overall direction for implementation of the scheme and will be headed by the Development Commissioner (MSME). PMAC will have overall responsibility for policy formulation, Scheme implementation and monitoring. It will be empowered to take all key decisions related to the Scheme and to approve minor modifications / procedural changes in the guidelines for operational expediency. PMAC would deliberate on the issues put up by NMIU. It would lay down the detailed implementation strategy for the NMIU. The constitution of the PMAC will be:

1.	SS & DC(MSME)	Chairman
2.	Joint Secretary/DDG looking after the NMCP scheme in the office of DC(MSME)	Vice Chairman
3.	EA(IFW)/Representative	Member
4.	JS DIPP/Representative	Member
5.	In-Charge, NMIU	Member
6.	Representative of Implementing agencies	Member
7.	ADC/JDC in-charge of the scheme	Member-Secretary
8.	Special invitees / experts/ consultants	Member

7.0 APPROVAL PROCESS

- IAs shall be responsible for formation of clusters, identification of consultants, monitoring of the clusters and LMCs and their terms of engagement, submission of reports to NMIU and such other day to day activities as are necessary for implementation of the scheme at the cluster level.
- IAs shall submit their consolidated list of proposed clusters to NMIU. NMIU shall put up the same before PMAC and take approvals
- Having obtained sanction/approval for its project, IAs shall proceed with the selection of the LMCs as per the criteria approved by PMAC and finalize the terms of engagement in consultation with the NMIU.
- MoU performa shall be finalised by NMIU and provided to IAs. MoU shall be signed by MC and IA.

8.0 MODALITIES OF FUND TRANSFER:

- i. Total payment of consultancy fees shall be in five instalments.
- ii. 1st instalment of 20% of total consultancy fees shall be paid by the LMC to IA after DSR acceptance by PMAC. Timeline is two months from the date of signing of MOU.
- iii. Quarterly review meeting by PMAC with each IA shall be held after the 1st milestone where progress on every cluster shall be reviewed. NMIU shall submit the detailed case to case proposal before PMAC for approval of rest of the 4 instalments. Delay needs to be justified on case to case basis by IA.
- iv. Funds shall be released to each IA.
- v. **Fund Transfer to NMIU Secretariat:** For facilitating the smooth and faster roll out of the Scheme at a National Level, the total amount of grant envisaged under the Scheme would be periodically transferred to NMIU Secretariat to be kept in a separate account to be opened by NMIU. NMIU could take the funds out of this account against compliance of pre-defined conditions/sanctions. NMIU would keep and periodically report on the fund status to PMAC.
- vi. **Fund Transfer to SPV/MC:** NMIU would transfer the funds to IA into their separate account opened for the project. This transfer of funds will be towards the amount of the fees paid by SPV to IA for achieving a particular milestone, after cross checking with a report for the achievement of same milestone and of satisfactory performance of the LMC. NMIU would seek documentary evidence in the form of a certificate of the Authorized Signatory of the IA which would also form part of the Progress Report.

FUNDS FLOW CHART

