ZERO DEFECT – ZERO EFFECT - ZED

1. We should manufacture goods in such a way that they carry zero defect and that our exported goods are never returned to us.
2. We should manufacture goods with zero effect that they should not have a negative impact on the environment”.

   a. Ensuring competitiveness of India’s MSME is critical as it will contribute to the overall growth of the manufacturing sector and the country’s economy.
   b. International companies competing in global markets focus on their competitive strengths of costs acceptable to the market, technology, innovation, service delivery, lean manufacturing, and defect free products for Zero Defect and Zero Effect (ZED).

3. ZED has presented a model where the concept of quality has a holistic change from a tool for compliance to a source of competitiveness.
4. Operationally, it is meant to evolve from a total dependency on inspection of the final product to correct defects, to a proactive process of improving processes like quality planning, product and process designing, optimum processes, efficient resource management, effective outsources activities and breakthrough outcomes.
5. Along with a focus on quality of products and services, there is an equal emphasis on the elimination of impact on the environment through adequate planning at product and process design, pre-production (start-up activities), production and maintenance activities, post production (disposal after use) and outcome of environment performance. Overall, the net result is sustainable development.
6. The ZED scheme is an integrated and holistic certification system that will account for quality, productivity, energy efficiency, pollution mitigation, financial status, human resource and technological depth including design and IPR in both products and processes.
7. The parameters of the scheme will cover all aspects of the existing schemes of Ministry of MSME: Quality Management System (QMS) / Quality Technology Tools (QTT), Lean Manufacturing Competitiveness Programme (LMCS), Design Clinic and Technology and Quality Up-gradation (TEQUP), and Building Awareness on Intellectual Property Rights (IPR).

ZED Scope

The Model shall be applicable for all sectors of manufacturing industries.

- It will focus on MSMEs and small businesses.
- It will address the quality and ecological needs of domestic and overseas customers, society, employees, partners, regulators, and investors.

Vision

To enable the advancement of Indian industry to a position of eminence in the global marketplace and leverage India’s emergence as the world’s supplier through the ‘Made in India’ mark.
Mission

To develop and implement a ‘ZED’ culture in India based on the principles of:

Zero Defect (focus on customer)

- Zero non-conformance/non-compliance
- Zero waste

Zero Effect (focus on society)

- Zero air pollution/liquid discharge (ZLD)/solid waste
- Zero wastage of natural resources

Ecosystem

1. The ecosystem of ZED has dynamic systems & processes working in synergy with specific roles to play in the foreseeable future.
2. The sector specific models are aligned with all 25 sectors under the Make in India initiative, to begin with.
3. The Rating & Certification on the maturity assessment model is valid for a specified time period within which system of surveillance is inbuilt in the model.
4. The Model also envisages an award & reward system based on performance which may include both tangible and intangible benefits such as:
   - Motivation & Encouragement of MSMEs
   - Showcasing of high performing MSMEs
   - Success Stories
   - Benchmarking to International standards
It is essential for the ZED ecosystem to collaborate for:

- Cooperative Agreements
- Knowledge Sharing
- Dissemination of information to foreign investor

The ZED Model will be propagated at various levels of the system to achieve:

- Public procurement
- Policy interventions / proposing policy solutions
- Participate in Public & Private agenda settings
- Initiate changes in Society
- Facilitate public argumentation (journals, newsletters, blogs, online discussion forums, conclaves, seminars etc.)

**Implementation Structure**
Benefits of ZED

- Credible recognition of the industry for international customers seeking investment in India
- Streamlined operations and lower costs
- Superior quality, reduced rejection and higher revenues
- Increased environmental & social benefits
- Additional employment generation
- Other benefits as announced by the Government from time to time

ZED Maturity Assessment Model

1. The ZED Maturity Assessment Model has been conceived and structured to offer graded benchmark levels of an organisation's performance through a set of standard enabler and outcome parameters focusing on quality and environmental performances.
2. It aims to rate and handhold all MSMEs to deliver top-quality products using clean technology.

- The aim is to help MSMEs evolve and grow by providing them adequate training and funding to move up the value chain and produce quality products.
- The ZED model will sensitise MSMEs to emphasise delivery of high quality products with zero defects.
- Clean energy will be a very important aspect of the model. Enterprises will be encouraged and hand-held to adopt clean technology into their processes to attain a sustainable growth trajectory.
- There will be sector-specific assessment parameters for each industry such as food processing, textiles, leather, auto parts, etc.

Parameters

1. The MSMEs will be assessed & rated on defined enabler & outcome parameters on operational level indicators.
2. The organisational level indicators are useful pointers towards implementing a ZED Maturity Assessment Model at the operational level. These indicators may include:

- Manufacturing capabilities
- Design capabilities
- Quality/Environment/Safety assurance systems
- People development and engagement systems
- Standardization and measurement systems for quality and environment
- Learning and improvement systems
- Legal compliances (hygiene factor)
An organization applying to be evaluated on the ZED Maturity Assessment Model shall demonstrate and will be assessed on the following parameters at the operational level:

<table>
<thead>
<tr>
<th>Enablers For Product Quality</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process design for quality</td>
<td>5</td>
</tr>
<tr>
<td>Pre-production (start-up activities)</td>
<td>2</td>
</tr>
<tr>
<td>Production and maintenance activities</td>
<td>4</td>
</tr>
<tr>
<td>Product design for quality</td>
<td>2</td>
</tr>
<tr>
<td>Post-production activities</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Enablers For Emission, Effluent and Waste Disposal Activities</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process design for environmental management</td>
<td>4</td>
</tr>
<tr>
<td>Pre-production (start-up activities) for environmental management</td>
<td>1</td>
</tr>
<tr>
<td>Production and maintenance activities</td>
<td>2</td>
</tr>
<tr>
<td>Product design for environment</td>
<td>1</td>
</tr>
<tr>
<td>Post-production activities</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Enablers For Resource Management</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility</td>
<td>3</td>
</tr>
<tr>
<td>Human resource</td>
<td>2</td>
</tr>
<tr>
<td>Outsourced activities</td>
<td>1</td>
</tr>
<tr>
<td>Innovation and creativity – safeguarding</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcomes for quality performance</td>
<td>3</td>
</tr>
<tr>
<td>Outcomes for process performance</td>
<td>4</td>
</tr>
<tr>
<td>Outcomes for environmental performance</td>
<td>3</td>
</tr>
<tr>
<td>Outcomes for overall company performance</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Parameters</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Enablers</td>
<td>36</td>
</tr>
<tr>
<td>Outcomes</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
</tr>
</tbody>
</table>
How it Works

There are 50 parameters on which the MSMEs will be assessed and rated.

- The MSME applicant is required to comply with identified 20 essential parameters & at least 10 other parameters (as per the MSMEs domain competency, i.e. sector of operation and type of industry). Hence, the MSMEs will be rated on a minimum of 30 parameters.
- MSMEs may seek ZED rating on more than 30 parameters as per the processes and systems available at the MSME.
- Each parameter has 5 levels.
- The Rating is based on a weighted average level.
- The company is encouraged, handheld and trained to achieve a higher level for each parameter and thus elevate itself in the maturity model.

**Rating of EACH PARAMETER will be done as per the following:**

<table>
<thead>
<tr>
<th>Level</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>0</td>
</tr>
<tr>
<td>Level 2</td>
<td>2</td>
</tr>
<tr>
<td>Level 3</td>
<td>3</td>
</tr>
<tr>
<td>Level 4</td>
<td>4</td>
</tr>
<tr>
<td>Level 5</td>
<td>5</td>
</tr>
</tbody>
</table>

**Proposed Rating Levels**
An Example

Company A is being rated on 35 parameters
Of these 35 parameters:
On 18 parameters the MSME is at Level 5
On another 12 parameters it is at Level 4
On remaining 5 parameters it is at Level 3
Hence the scores will be calculated as follows:

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Level</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>5</td>
<td>90</td>
</tr>
<tr>
<td>12</td>
<td>4</td>
<td>48</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>153</td>
</tr>
</tbody>
</table>

Company A Rating:
(Total points / Applicable Levels): 153 / 35 = 4.37
And hence the Company A is a ZED Platinum Company
Assessment Criteria

Organizational Level

An organization applying to be evaluated using the ZED Maturity Model must demonstrate the following aspects. These aspects are only indicators and shall not be used for the assessment/rating of organizations.

1. Manufacturing capabilities
   - The organization shall acquire or develop manufacturing capabilities that enhance its ability to manufacture products in conformance with agreed specifications on a consistent basis taking into account all variations that may occur.
   - The organization shall regularly review and upgrade its manufacturing capabilities in line with changing customer expectations and technologies.
   - An organization meeting global manufacturing standards shall operate its manufacturing processes in a Lean - Six sigma environment, with ppm levels and operational efficiencies that match with the best in the world.

2. Design capabilities
   - The organization shall develop or have access to design capabilities that will enable it to design, develop and constantly upgrade its products and service features to meet changing customer requirements and expectations.
   - An organization meeting global design standards shall operate in a highly innovative environment with a fully evolved design capability aided with IT enabled design tools and a clear understanding of design processes such as DFSS, QFD, DFMA and TRIZ.

3. Quality/Environment/Safety Assurance Systems
   - The organization shall develop and maintain quality, environment and safety assurance management systems that enable it to identify and address customer, environment and employee needs in a systematic manner, with a fully evolved process management system, clearly defined objectives and performance indicators that are fully integrated and synchronized to cater to the identified needs.
   - The management system shall create an environment for the full realization of manufacturing capability, design capability and people and partnership potential to meet customer expectations, environment performance goals and safety standards.
   - An organization operating at global standards shall have a single integrated management systems, which enables agility, flexibility, risk based decision making and enhances stakeholder confidence.

4. People development and engagement systems
   - The organization shall develop people competence and involvement commensurate with the identified organization capability to deliver product
design, conforming product, environmental and safety performance at each maturity level.

- A highly matured organization shall have developed an environment where people are empowered, motivated, fully engaged, feel responsible to innovate and take ownership of products and environmental performance.

5. Standardization & Measurement systems for Quality and Environment

- The organization shall develop and install dynamic framework of process and product standards and credible measurement systems that are aligned to provide true indicators of product and process performance, customer feedback, environmental impact and safety performance in real time, and enable quick and effective decision making.
- A highly mature organization integrates all measurements with business information systems that enable full control on current and predicted performance through the use of intelligent measurement and statistical tools.

6. Learning and Improvement systems

- The organization shall develop a learning environment where management and people develop the habit of using and relying on data, trends and other internal and external information to understand and improve products, process performance, environmental and safety performance.
- A highly mature organization encourages and practices the capturing, dissemination and use of knowledge generated from internal and external sources to make improvements and sustain its growth, quality levels and environmental performance.

7. Legal compliances (Hygiene factor)

- The organization shall have a policy of no tolerance for any non-compliance with statutory and regulatory requirements related to product quality, environment and safety.
- A mature organization shall have an agile system of identifying new regulatory requirements, regularly performing compliance audits and checks that are reviewed and monitored by the Board or equivalent.

8. Operational Level

- An Organization applying to be evaluated on the ZED maturity model shall demonstrate and will be assessed on the following enablers and outcomes at the operational level in relation to Product Quality, Environmental performance and outcomes.
**ZED Process Flow**

1. **Awareness & Training**
   1. Awareness and sensitization training programmes and workshops will be conducted for consultants, assessors, industry clusters and companies. Awareness programs are intended to encourage all stakeholders to commit to the ZED Model.
   2. With an aim to invoke participation of MSMEs from maximum sectors, region & size, a string of awareness workshops were conducted from May to August 2015 for the Pilot Project.
   3. Similar awareness and training programs are planned for National Roll Out.

2. **Self-Assessment**
   1. The MSME can take online self-assessment to get an idea of ZED Model and get prepared for site-assessment.
**Desktop Assessment**

1. QCI will monitor & assess the self-assessment exercise undertaken by the MSME and provide detailed report and guidance wherever necessary to the company before the company goes for the ZED site-assessment and rating process.
2. The inputs in the report will be provided by a QCI certified Consultant.

**Site Assessment**

1. Then there will be a site-assessment (and, eventually, a ZED rating) for each SME in the ZED process conducted by QCI accredited agencies.
2. The assessors conducting the rating assessments will be certified on the ZED model by QCI.

**ZED Rating and Certification**

1. The rating provided will be valid for a period of 4 years. QCI will award the certification to the respective companies as per the site assessment conducted.

**Gap Analysis & Handholding**

1. The company, if it so wishes, can apply for consulting support through a handholding process by QCI empanelled consultants who have been trained and certified.
2. They will assist the company in achieving a higher rating thus moving up the ZED maturity model.
3. If the company chooses to avail of consulting support, they will then be assessed onsite and given a renewed ZED rating (as described previously) after a fixed duration.

**Surveillance**

1. Surveillance activity will be undertaken after 18 months by QCI accredited agencies to ensure that the ZED rated company is progressing as per the plan established in the ZED rating process.