User Manual for Integrated Credit Rating Model

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Table of Contents

Model Structure *2*

Scale **2**

Structure **3**

Parameters **4**

Credit Risk 4

Green Parameters 8

Mapping of Credit Risk Score to Model Rating Grade **11**

Guidelines for Selection of Parameters *12*

Credit Risk **12**

Management Risk Parameters 12

Industry Risk Parameters 15

Operational Risk Parameters 17

Financial Risk Parameters 20

Project Risk Parameters 25

Notch-up/Notch-down Parameters 30

Green Parameters **31**

Structure of the technical manual to capture green parameters for integrated credit rating model **31**

Applying Survey Techniques **32**

1.1 Cluster Level 32

1.2 Unit Level 33

General Information Sheet **36**

Guide to the Survey Sheet and Green Parameters **37**

3.1 Format for Guridance on each parameter 37

3.2 Air Emissions and Control-AE 38

3.3 Waste Management, Storage, Transportation and Disposal (all waste except waste water) - WG 40

3.4 Water and Waste Water Management – WW 42

3.5 Energy Saving and Efficiency- EE 44

3.6 Renewable Energy - RE 46

3.7 Environmental compliance- EC 47

3.8 Occupational Health, Safety and Social Parameters -OHS 49

3.9 External Quality Certifications 51

3.10 Negative Parameters 52

Annexure-1: Green Rating Parameters **53**

Annexure-2: Definition of Red, Orange and Green Category Industries **57**

Annexure-3: List of Notified Areas for Control and Regulation of Ground Water **59**

Annexure-4: List of Critically Polluted Areas as defined by CPCB **63**

List of Abbreviations **64**

Model Structure

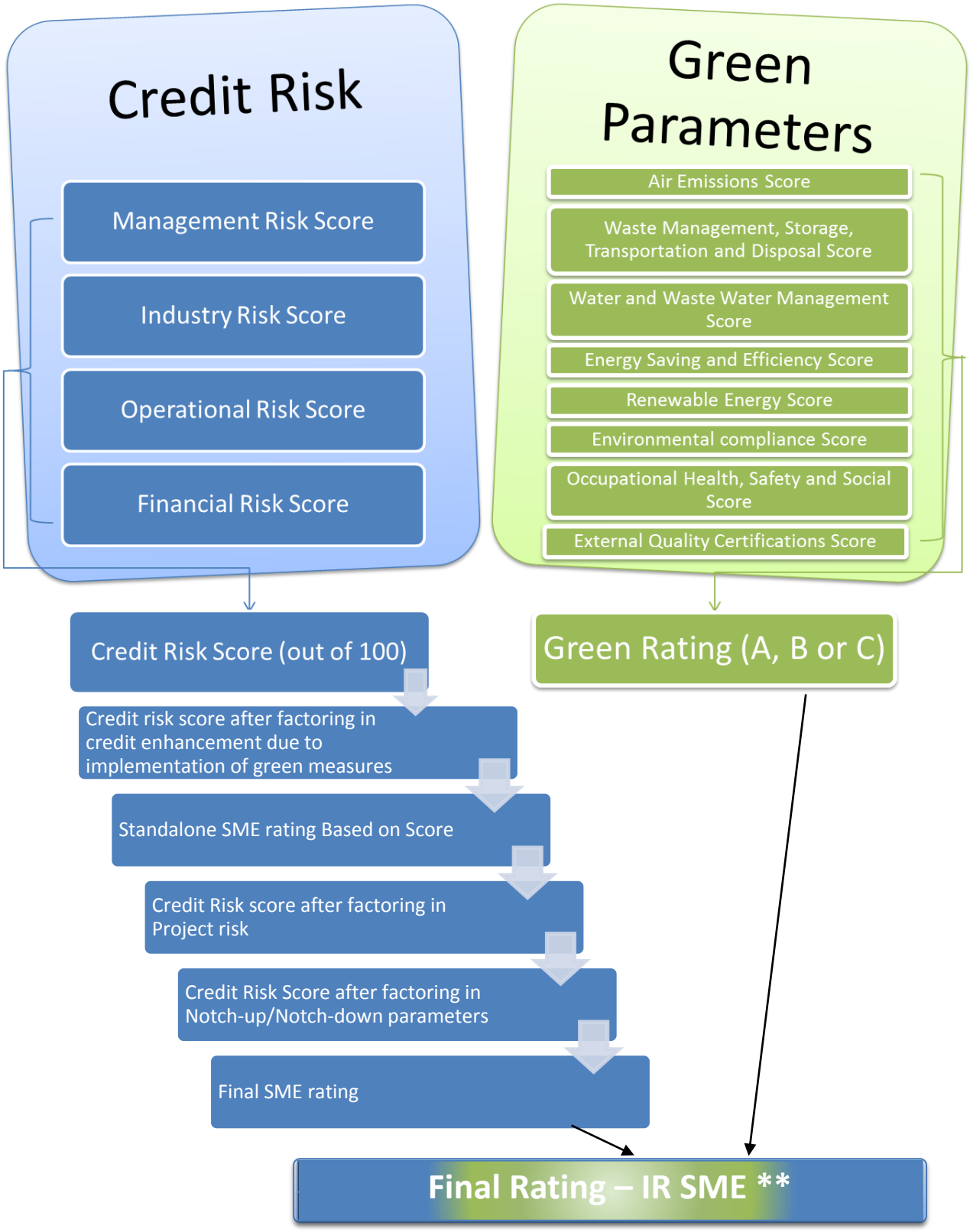
A comprehensive model is being developed which assesses the entity on two scales viz. firstly on credit risk of the entity and secondly on implementation of green measures by the entity.

Scale

Rating Matrix		Integrated Green Performance Capability		
		High	**Moderate**	**Low**
Creditworthiness Covers both Financial and Operational Aspects	**Highest**	IR SME 1A	IR SME 1B	IR SME 1C
	High	IR SME 2A	IR SME 2B	IR SME 2C
	Above Average	IR SME 3A	IR SME 3B	IR SME 3C
	Average	IR SME 4A	IR SME 4B	IR SME 4C
	Below Average	IR SME 5A	IR SME 5B	IR SME 5C
	Inadequate	IR SME 6A	IR SME 6B	IR SME 6C
	Poor	IR SME 7A	IR SME 7B	IR SME 7C
	Default	IR SME 8A	IR SME 8B	IR SME 8C

Here SME 1 to SME 8 reflects the creditworthiness of the entity (this covers both financial and operational strength of the entity) and A to C reflects the performance of entity on implementation of Green measures.

Structure


Credit Risk
Management Risk Score
Industry Risk Score
Operational Risk Score
Financial Risk Score
Green Parameters
Air Emissions Score
Waste Management, Storage, Transportation and Disposal Score
Water and Waste Water Management Score
Energy Saving and Efficiency Score
Renewable Energy Score
Environmental compliance Score
Occupational Health, Safety and Social Score
External Quality Certifications Score
Credit Risk Score (out of 100)
Green Rating (A, B or C)
Credit risk score after factoring in credit enhancement due to implementation of green measures
Standalone SME rating Based on Score
Credit Risk score after factoring in Project risk
Credit Risk Score after factoring in Notch-up/Notch-down parameters
Final SME rating
Final Rating – IR SME **

Parameters

Credit Risk

The scoring is on individual parameters in each category. The individual parameters within the category are as follows:

Management Risk	
1.1	Track Record of operations
1.2	Experience of promoter/Key personnel in the current business or similar industry
1.3	Presence of formal/informal organizational structure
1.4	Constitution of the entity
1.5	Succession planning
1.6	Importance of finance function
1.7	SME specific Corporate Governance practices and clarity of future goals

Industry Risk	
2.1	Demand-Supply Position
2.2	Competitive position of the company in the industry
2.3	Cyclicality and Seasonality
2.4	Impact of changes in governmental regulations/policies/Threat of imports and substitutes
2.5	Sensitivity of operations to the requirement of clearances
2.6	Raw material availability
2.7	Price volatility of raw materials

Operational Risk	
3.1	Locational Advantage
3.2	Adequacy and availability of utilities like power, water etc.
3.3	Capacity utilization for the last three years (Weighted Avg. utilization)
3.4	Adequacy and availability of Manpower
3.5	Geographical Diversification
3.6	Importance of marketing and adequacy of current marketing setup
3.7	Customer Profile
3.8	Technology used
3.9	Quality Management
3.10	Product diversity

Financial Risk	
	Growth
4.1	Growth in Total Operating Income in last 3 years
	Profitability
4.2	Average PBIDT Margin for last three years
4.3	Average PAT Margin for the last three years
4.4	ROCE (%)
4.5	Variability in Gross Profit Margins
	Solvency
4.6	Long term debt equity ratio
4.7	Overall Gearing Ratio
4.8	Total Debt / Gross Cash Accruals (times)
4.9	Interest Coverage Ratio
4.10	TOL/TNW
4.11	Minimum DSCR (for next three years)
4.12	Average DSCR (for next three years)
	Liquidity
4.13	Working capital turnover ratio
4.14	Current Ratio
4.15	Quick Ratio
4.16	Average Cash DSCR (for next 3 years)
4.17	Average utilization of working capital limits in last one year

Correction for Industry Risk

Financial risk score is corrected for the level of industry risk. Here, lower the score means higher the industry risk. Therefore entity which are operating in industry having high risk and thereby able to command better financial profile would be discounted for the industry risk.

The each category has its standalone weights. The score obtained under above parameters is then multiplied by category weight.

Category	Weightage
1.Management Risk	A
2.Industry Risk	B
3.Operational Risk	C
4.Financial Risk	D
Total	**100.0**

Impact of implementation of Green measures on Credit risk score

The score obtained above is increased after factoring in credit enhancement due to implementation of green measures by the entity. The implementation of green measures has a direct impact on:

- Management Risk Score: It reflects management vision for long term business sustainability as well as CSR (Corporate Social Responsibility) activity
- Industry Risk Score: Implementation of green measures helps in compliances and resource management.
- Operational Risk Score: Implementation of green measures would have benefits in term of energy efficiency, labor satisfaction, steps towards adoption of international best practices etc.

The overall credit risk score is increased by marks to factor in the impact of implementation of green parameters

Impact of Project Risk

The project risk significance is defined in terms of the size of project. So, project risk need to be evaluated only if the size of project is more than 50% of net-worth. The rationale that under normal course of business operations certain addition of plant and machineries are required which does not have notable impact on the overall credit profile of entity.

Project Implementation Risk	
5.1	Project Size
5.2	Project Gearing
5.3	Financial Closure
5.4	Project Implementation Track Record
5.5	Stage of project implementation (% work completed)
Project Post -Implementation Risk	
5.6	Type of project
5.7	Stabilization of facilities
5.8	Salability risk (Project production capacity compared to present one)
5.9	Raw material / utilities / manpower related issues (availability/non-tie-up) that can hamper production of the project capacities
5.10	Increase in regulatory / sovereign / forex risk in relation to the project
Impact of cost and time overrun	
5.11	Time overrun impact
5.12	Cost overrun impact
5.13	Financial closure for cost overrun achieved

Based on score obtained on above parameters using an algorithm, the credit score obtained under first step is discounted.

Notching-Up and Notching-Down Parameters

There are certain parameters which cannot be directly linked to business profile but have direct bearing on credit risk profile of entity. There parameters are as follows which has a discounting factor attached depending on the option selected:

Notching-Up and Notching-Down Parameters	
6.1	Payment track record to banks
6.2	Group Support
6.3	Reliability of Accounts

Other Notching-Down Parameters

Apart from above there could be certain parameters which could have significant impact on credit risk profile but impact cannot be quantified. Therefore, scope of additional parameters is provided wherein based on Analyst opinion/analysis rating would be discounted in terms of notches. 1 notch would have impact of 1 grade lower i.e. if rating output is SME 1, "1 Notch discount means it would move to SME 2).

One such parameter is post balance sheet event.

Green Parameters

Industry categorization: Red/Orange/Green

Sno.	Category		Parameters
1	Air Emissions	AE1	Has the unit installed pollution control measures to check release of air pollutants into the atmosphere? [Use of Venturi Scrubber/Simple Scrubber, Bag filters, Electro Static Precipitators (ESP) etc.]
2		AE2	Does the unit comply with SPCB/CPCB's industry specific norms for air emissions?
3	Waste Management, Storage, Transportation and Disposal (all waste except waste water)	WG1	Does the unit keep its generated waste at a designated place?
4		WG2	Is the area of waste storage is adequately covered to stop leakages/ runoff of chemicals during rains?
5		WG3	Does the unit ensure that the waste/byproducts leaving the premises of the unit are safely disposed off?
6	Water and Waste Water Management	WW1	Does the unit map its water consumption (through flow meters) for each of industrial processes?
7		WW2a	Is the unit required to treat its process waste water as per the Consent to Operate (CTO)
8		WW2b	Does the unit treat its effluent before releasing it outside the physical boundary of the unit?
9		WW2c	Does the waste water released exceed any limit specified in the waste water standards issued by the SPCB/CPCB?
10		WW3	Does the unit disposes off all waste water through sewer system?
11		WW4	Is Rain Water Harvesting (RWH) installed in the unit premises?
12		WW5	Does the unit use Rain Water Harvesting (RWH) system to meet its water demand (either partially or fully)?

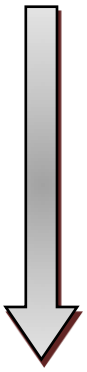
13	Energy Saving and Efficiency	EE1	Is there a provision for mapping 'energy use' at process level, through energy meters?
14		EE2	Is there recovery of energy/heat at any stage within the process?
15		EE3	Does the unit use star rated utility appliances (e.g. refrigerators, ACs etc.) with rating 4 or above?
16		EE4	Does the unit use any energy efficient lighting source (CFL/LED) in the offices?
17		EE5	Does the unit utilizes natural light for lighting purposes - Sun roofing, Sun facing big windows
18		EE6	Is there product testing facility available at the SME unit?
19		EE6.a	Raw material testing
20		EE6.b	Product testing (at any stage of production)
21		EE7	Does the unit employ a designated energy manager or energy team?
22	Renewable Energy	RE1	Has the unit installed any renewable energy system (Solar etc.) within the premises?
23	Environmental compliance	EC1	Does the unit display Material Safety Data Sheets (MSDS) for hazardous materials/chemicals being stored within the facility?
24		EC2	Has the facility ever received any notice in violation of any of the laws mentioned in the description (Laws relevant to Environment Health and Safety)?
25		EC3	Does the unit has all the valid consents from the State Pollution Control Board) SPCB?
26	Occupational Health, Safety and Social	OHS1	Is there a provision for adequate lighting in the unit?
27		OHS2-a	Is there provision to ensure circulation of clean air (exhaust fans, air conditioning etc.) on the shop floor?
28		OH2-b	What was the quality of air at the time of visit?
29		OHS3	Are there safety signs, slogans and markings at the shop floor (fire exits, electrical equipments, high voltage etc.)?
30		OHS4-a	Any fire Mock drill carried out in the unit?
31		OHS4-b	Frequency of Mock drills. (Unit will get positive points if the duration between two drills is ~ 6 months). Zero points if this is ~1` year. Negative points if > 2 years
32		OHS5	Are there adequate fire management measures (Fire Extinguishers, fire exits etc.) in place?
33		OHS6	Is there adequate provision of mechanisms to make sure that labors are safe from moving parts of machines? (safety sensors, safety enclosures, grills etc.)
34		OHS7	Does the unit employ any child labor?
35		OHS8	Does the labor use PPPs (personal protective equipments)

			on the shop floor?
36		OHS9	Is there provision of basic amenities to the workers (e.g. drinking water, toilets)
37		OHS 9-a	Quality of Basic Amenities: Water
38		OHS 9-b	Quality of Basic Amenities: Toilets
39		OH10	Does the unit provide legal benefits like ESI, PF, maternity, insurance benefit to the workers?
40		OHS11	What is the % of labors under contractual agreement? (<33 % is under tolerance limit, gets 1 point, 33-66% gets 0 points and >66% gets negative points)
41	External Quality Certifications	EQC1	Does the unit hold any 'valid' quality assurance certificate (e.g. ISO 9001, TS 16949 etc.)?
42		EQC2	Does the unit hold 'valid' ISO14001 Certificate?
43	Negative Parameters	NP1	Have unit remained closed for more than 1 month cumulatively in past 1 year due to violation/non-compliance of any laws related to environment, health & safety, Child labor, Air emissions and water treatment.
44		NP2	If NP1 is No, then Have unit remained closed for more than 1 month cumulatively in past 3 years due to violation/non-compliance of any laws related to environment, health & safety, Child labor, Air emissions and water treatment.

Mapping of Credit Risk Score to Model Rating Grade

Credit Risk

Marks - Rating Guide	Lower bound	Upper Bound	Rating
88%	88	100	SME 1
78%	78	88	SME 2
68%	68	78	SME 3
58%	58	68	SME 4
48%	48	58	SME 5
38%	38	48	SME 6
28%	28	38	SME 7
0%	0	28	SME 8



Lowest Risk

Highest Risk

Implementation of Green Measures

Marks - Rating Guide	Lower bound	Upper Bound	Rating
66%	66	97.5	A
33%	33	66	B
0%	0	33	C

High Performance capability

Low performance capability

Guidelines for Selection of Parameters

Credit Risk

Management Risk Parameters

	Parameter		Criteria	Rationale	Selection Guide
1.1	Track Record of operations	1	>15 years - Very Long	Track record of operations reflects the capability to survive the business cycle as well as vision of the management in terms of product additions, market expansion and technology up-gradation.	• Track record is measured from the date of start of operations. Also, in case of takeover of business of other entity, the track record of that entity should be added if it has sizable operations i.e. at least 40% of the combined turnover after merger/acquisition.
		2	8-15 years - Long		
		3	5-8 years - Reasonable		
		4	3-5 years - Short		
		5	1-3 years - Very Short		
		6	Project phase or less than 1 Year		
1.2	Experience of promoter/Key personnel in the current business or similar industry	1	>20 years - Very Long	Experienced promoters and strong business group would help in handling the business better even during the difficult situations. Strong business group can provide support to the new business; Management response to past issues is an important parameter to evaluate the management risk	• Experience of only key management personnel who are involved in the business should be considered. • It is based on the average experience of Directors/partners or experience of proprietor in the current business or similar line of business. • In case of professional/executive staff manages the overall operations. Average of their experience in the business will be taken. • The experience should be seen in terms of industry not for products. For
		2	10-20 years - Long		
		3	5-10 years - Reasonable		
		4	3-5 years - Short		
		5	<3 years - Very Short		

					example if entity is engaged in manufacturing of texturized yarn then experience in textile industry would be used for calculation purposed not experience in manufacturing of texturized yarn.
1.3	Presence of formal/informal organizational structure	1	Presence of structure with clearly defined levels and responsibilities	Presence of organization structure enhances decision making capacity and delegations of authority & responsibility. It acts as an added advantage for SMEs for overall operation management.	• Organizational structure should commensurate to the size of operations. • The major bifurcation for SMEs should be seen in terms of production, marketing, finance and procurement functions. • Here, the operations would be handled by promoters and family personnel so non-employment of professional executives should not be considered as negative.
		2	Presence of structure with clearly defined levels, responsibilities but comprises of family members		
		3	Presence of structure but with no defined roles		
		4	Absent, with a one man show		
1.4	Constitution of the entity	1	Company	In case of partnership/proprietorship/Trust/Society/LLP, the firm has restricted avenues of raising external borrowing. For Partnership and proprietorship there is risk of withdrawal of capital.	• As per incorporation document
		2	Partnership/trust/Society /LLP		
		3	Proprietorship		
1.5	Succession planning	1	Present/Not an Issue	Succession planning is important specifically in case of SMEs which are normally managed by single person or family personnel. Therefore	• Succession planning is to be analyzed in terms of second generation, family personnel who can look after business. • Also, the age of key promoters or
		2	Absent		

				under the assumption of going concern, the succession planning must be analyzed.	flexibility to appoint executives for management would need to be seen under this parameter.
1.6	Importance of finance function	1	Good	Management foresightedness in arranging finance based on future requirement as well as importance given to timely service of debt obligations is vital for growth prospects as well as credibility of an organization.	• Importance given to finance function is measured in terms of timely arrangement of funds through banks or own funds as per business needs, Systems setup for timely payment of debt obligations, budgeting and payments policies for debtors and creditors. • Presence of internal auditor, professionals and delegation of power for minor finance related functions should be seen.
		2	Moderate		
		3	Poor		
1.7	SME specific Corporate Governance practices and clarity of future goals	1	Sound	Corporate governance is essential to instill investor confidence in the organization. Here, SME specific corporate governance refers to the policies and practices which can be followed considering the size of operations.	• It is to be measured in terms of clarity on future goals, compliance of statutory requirements, adequate disclosures of related party transactions, non-usage of funds other than business requirements and past record of key management personnel. • Transactions with associate/group concerns should also be seen.
		2	Good		
		3	Average		
		4	Weak		

Industry Risk Parameters

	Parameter		Criteria	Rationale	Selection Guide
2.1	Demand-Supply Position	1	Highly favorable	Demand supply position has a direct relation with the growth in operating income, capacity utilization levels and profitability.	• It is to be based on industry research and Future growth prospects of industry. • In case of regional/Local focus the Demand supply position should be focused on region specific but overall demand/supply scenario should also be analyzed. • Here, highly favorable should be selected in case of increasing demand of the products having high growth prospects with limited players to meet the demand or few players (including entity under consideration) commands major market share.
		2	Favorable		
		3	Moderate		
		4	Unfavorable		
		5	Highly unfavorable		
2.2	Competitive position of the company in the industry	1	Very Strong	Competitive position of the entity has direct bearing on profitability, operating cycle, growth prospects and sustainability of business model.	• Selection should be based on Size of operations/Market share/Uniqueness in the products, bargaining power of customer and suppliers etc. • For SMEs, if an entity command significant share in particular region (minimum state level), it can be seen as "strong" position.
		2	Strong		
		3	Moderate		
		4	Weak		
		5	Very weak		
2.3	Cyclicality and Seasonality	1	No / negligible	Cyclicality in an industry impacts the long term business sustainability whereas seasonality impacts the liquidity position during the year.	• Based on industry in which entity is operating. Cyclical industries includes textile, real estate, steel, automobile etc. and seasonal industries includes construction, agricultural, mining etc.
		2	Moderate		
		3	High		
2.4	Impact of changes in governmental regulations/polic	1	Negligible impact	Government intervention and control on prices, taxes, sales quota, subsidies etc. had direct bearing of overall profile of	• It is to be based on extent of government intervention in past, control on prices/government schemes offered in the
		2	Little impact		
		3	Moderate impact		

	ies/Threat of imports and substitutes	4	Significant impact	entity. Imports and Substitutes directly impact the demand and competition in the industry.	industry, regulatory compliance requirements, control on export sales, control on import of raw material, regulations related to anti-dumping duty etc. • Further, threat of cheaper imports must be analyzed.
		5	Very significant impact		
2.5	Sensitivity of operations to the requirement of clearances	1	Negligible impact	Sensitivity to requirement of clearances is important in SMEs as it can result in capping of revenue growth as well as non-compliance can result in closure of business operations.	• Clearances specific to industry should be seen which includes environmental clearances, waste disposal, land clearances etc. alongwith region specific issues related to receipt of clearances should also be seen
		2	Moderate impact		
		3	Significant impact		
2.6	Raw material availability	1	Abundantly available	Raw material availability in essential of smooth business operations and management of working capital requirements.	• It should be seen in terms of timely availability and in context of raw material inventory holding requirement. • For SMEs, backward integration even in group companies should be viewed positively as would reduce raw material availability risk. • Special focus should be given for industries like fertilizers, chemicals, rubber, agricultural based products etc.
		2	Available, future shortages cannot be ruled out		
		3	Available, but with occasional shortages		
		4	Very frequent material shortages		
2.7	Price volatility of raw materials	1	Low volatility	Typically, SMEs have limited control over raw material prices. Thereby raw material price volatility has direct bearing on profitability of the entity.	• If absolute change in raw material prices during last three years on average basis is: more than 20% than High volatility, 10%-20% moderate Volatility and less than 10% than low volatility
		2	Moderate volatility		
		3	High volatility		

Operational Risk Parameters

	Parameter		Criteria	Rationale	Selection Guide
3.1	Locational Advantage	1	Favorable - Present in a product cluster	Location of a unit is important in order to assess the ease of raw material procurement as well as salability of the final product. Larger the distance between the subject unit and its suppliers/ customers, more is the time and cost involved in the supply chain process	• A unit present in a cluster will fetch higher marks as there is an established supply for the raw material as well as market for finished goods • If not present in a cluster then the distance of raw material suppliers as well as its customers will be taken into consideration
		2	Average - Present near to the product cluster/proximity to raw material procurement Area/Proximity to its customers		
		3	Unfavorable - No locational advantage		
3.2	Adequacy and availability of utilities like power, water etc.	1	Adequate with full backup facilities	The easy and regular availability of the utilities are of much importance as the inadequate supply of any key utility like power, water etc. may hinder the production process	• Based on availability of power and water in the region and the backup facility available with the entity. This must be seen in context of the nature of business/products manufacturing process. The units with integrated operation having waste management and material recovery mechanism in place should be graded higher.
		2	Adequate with partial or no backup facilities		
		3	Adequate with no backup and frequent interruptions		
		4	Inadequate		
3.3	Capacity utilization for the last three years (Weighted Avg. utilization)	1	More than 80%	Capacity utilization gives an idea on the efficiency level of the manufacturing process. Generally as the utilization increases, the variable cost reduces and hence higher the utilization better will be the cost management.	• Based on data submitted by entity. For Latest Year (Y) weight is 50%, for previous year (Y-1) weight is 30% and for first year (Y-2) weight is 20%.If capacity utilization cannot be measured then based on best possible option can selected.
		2	60-80 %		
		3	40-60 %		
		4	<40 %		

3.4	Adequacy and availability of Manpower	1	Adequate manpower and sourcing is easy	The importance of adequacy of manpower availability is much higher in the labor intensive industries like agriculture/construction/real estate/ information technology etc. Adequacy of skilled manpower is important in technologically important units.	• For a unit with requirement of more unskilled labors, more weightage needs to be given to those companies which are located in the region where the adequate local labor is available. • Irrespective of demand supply of manpower, one should analyze the sourcing arrangements like training programs, tie-ups with Industrial training institutions (ITIs) and local labor unions. • Retaining of manpower should be analyzed as well.
		2	Adequate manpower but sourcing is difficult		
		3	Inadequate manpower but sourcing is easy		
		4	Inadequate manpower and sourcing is difficult		
3.5	Geographical Diversification	1	Highly Diversified	The presence of entity in various markets generally results in higher scale of operations and a natural protection against demand slowdown in a particular region.	• The companies having presence in both export and domestic presence with almost equal proportion should get the highest. If the product is sold only domestically then in domestic market, presence in number of states should be analyzed.
		2	Moderately Diversified		
		3	Limited Diversity		
		4	Single State or regional presence		
3.6	Importance of marketing and adequacy of current marketing setup	1	Not required OR Required and adequate setup present which is fully effective	An adequate marketing setup is required to strategically market the product and also to penetrate the untapped regions which will result in increase in the scale of operations	• This must be analyzed in respect of number of states covered, dealer network, branch offices, sales force and distribution setup.
		2	Required but the setup is moderately effective		
		3	Required, but the setup is totally ineffective		
3.7	Customer Profile	1	Very well-known and well diversified	The customer profile is required in order to analyze the counterparty credit risk	• The sales value wise top customers need to be analyzed in order to give a
		2	Known and Less diversified		

		3	Well Diversified	i.e. the risk of receipt of timely payment from the customers once the sale is registered. Generally the well-known and reputed customers are less likely to default in your payment	score. The sales proportion to the reputed and well known customer needs to be analyzed in order to arrive at score.
		4	Moderately Diversified		
		5	Unorganized and concentrated Customers		
3.8	Technology used	1	Latest and proven technology	Continuous technological development is important in order to improve the operating efficiency and effective cost control mechanism. The machineries run on obsolete technology result in higher cost of production than the ones with latest technology.	• Technology adopted should be seen in context of technology used by other players, age of Plant & Machinery and the technology available in the market.
		2	Latest and unproven technology		
		3	Relatively new technology/ old but proven technology		
		4	Obsolete technology		
3.9	Quality Management	1	Functional quality process available supported by certification	Quality management helps in the reducing wastages, maintenance of product quality and building brand name.	• Based on the copies of certificate submitted by entity which are valid as on date. • Here functional means that actual implementation of processes as observer during site visit.
		2	Functional quality process available not supported by certification		
		3	Non-functional quality process but availability of certification		
		4	No process and no certification		
3.10	Product diversity	1	Multiple products catering to different industries	The entity manufacturing diversified product profile generally results in higher scale of operations and a natural protection against demand slowdown in a particular product or particular industry.	• The different products manufactured and the user industries of those products need to be analyzed. A company manufacturing multiple products catering to different industries will be rated higher as the risk diversity is much higher in this case.
		2	Limited product portfolio catering to different industries		
		3	Multiple products catering to single industry		
		4	Limited product portfolio catering to single industry		

Financial Risk Parameters

	Parameter		Criteria	Rationale	Selection Guide
4.1	Growth in Total Operating Income in last 3 years	1	High (>25%)	Greater growth of the entity in the past indicates that the entity is in the growth stage and the management has been able to identify and manufacture products demanded by the users.	• Based on the 3 years Compounded Annual Growth Rate. • In case of operation of 2 years last year annualized growth rate would be considered. • In case of operations of only one year, based of realistic projected growth of next year, the option should be selected.
		2	Moderate (10%-25%)		
		3	Low (0%-10%)		
		4	Negative Growth		
4.2	Average PBIDT Margin for last three years	1	14% and above	It indicates the efficiency of running operations of the entity.	• PBIDT margin = (Profit before interest, depreciation and tax expense excluding non-operating and extraordinary income and expenses)/ Total Income • In case of operations of less than three years, the average would be for the number of years of actual operations.
		2	11%-14%		
		3	8%-11%		
		4	5%-8%		
		5	2%-5%		
		6	Below 2%		
4.3	Average PAT Margin for the last three years	1	9% and above	PAT margin shows the margin left for the equity and preference shareholders i.e. the owners. Unlike the PBIDT margin which measures the operating efficiency of the business, net profit margin measures the overall efficiency of the business.	• PAT margin = (Profit After Tax)/Total Income • In case of operations of less than three years, the average would be for the no of years of actual operations.
		2	6%-9%		
		3	3%-6%		
		4	1%-3%		
		5	Below 1%		
4.4	ROCE (%)	1	> 16%	It provides better understanding of a entity's ability to generate returns from its available capital base.	• ROCE = Annualized Profit before Interest and tax/Average Capital employed of last two years
		2	12-16%		
		3	8-12%		

		4	4-8%	Normally it should be seen in respect of cost of debt funds.	• Data as per the latest available financials provided by the entity.
		5	< 4%		
4.5	Variability in Gross Profit Margins	1	Margins are stable	In provides an indication of the fluctuation in future cash flows.	• Based on the trend in at least last 3 years
		2	Margins are less stable		
		3	Margins are highly volatile		
4.6	Long term debt equity ratio	1	<0.75 times	Solvency indicator. A company with high leverage is more vulnerable to downturns in the business cycle and has limited capacity of additional borrowings.	• Long term Debt Equity = (Total long term debt as on Balance sheet date excluding unsecured loans subordinated to bank debt)/(TNW+ unsecured loans subordinated to bank debt) TNW (Tangible Net worth) = Equity share capital + Reserve & surplus + Share premium - Misc. Expenditure not written off - intangible assets • Data as per the latest available financials provided by the entity.
		2	0.75 to 1 times		
		3	1 to 1.25 times		
		4	1.25 to 2 times		
		5	> 2 times		
4.7	Overall Gearing Ratio	1	< 1 times	Solvency indicator. A company with high leverage is more vulnerable to downturns in the business cycle and has limited capacity of additional borrowings.	• Based on latest audited results. Overall gearing = (Total debt as on Balance sheet date excluding unsecured loans subordinated to bank debt)/(TNW+ unsecured loans subordinated to bank debt) • Data as per the latest available financials provided by the entity.
		2	1 - 2 times		
		3	2 - 3 times		
		4	3 - 4 times		
		5	>4 times		
4.8	Total Debt / Gross Cash Accruals (times)	1	< 2 times	It reflects entity's ability to repay its debt out of cash generations.	• Based on latest audited results. Total Debt to GCA = (Total debt as on Balance sheet date excluding unsecured loans
		2	2 - 4 times		
		3	4 - 7 times		

		4	7 - 10 times		subordinated to bank debt)/Gross Cash Accruals • Data as per the latest available financials provided by the entity.
		5	10 - 14 times		
		6	>14 times		
4.9	Interest Coverage Ratio	1	> 3 times	It is a debt coverage indicator which reflects entities ability to meet interest obligations out of profit from operations.	• Interest Coverage = PBIDT/Interest • PBIDT = Profit before interest, depreciation and tax expense excluding non-operating and extraordinary income and expenses • Here, interest should be grossed up if net interest is shown. • In case of capitalized interest to be met by equity infusion, same should be deducted from total interest. • Data as per the latest available financials provided by the entity.
		2	2 - 3 times		
		3	1.5 - 2 times		
		4	1 - 1.5 times		
		5	<1 times		
4.10	TOL/TNW	1	< 1.5 times	This ratio reflects the relationship between capital contributed by creditors relative to the capital contributed by owners. From a lender's perspective a lower TOL/TNW is better as it demonstrates a larger owner commitment and an equity "buffer" to insulate the creditor from potential problems.	• TOL/TNW = Total Outside Liabilities/TNW Total Outside Liabilities = Total Debt + Total current Liabilities • Data as per the latest available financials provided by the entity.
		2	1.5 - 2.5 times		
		3	2.5 - 4 times		
		4	4 - 5.5 times		
		5	5.5 - 7 times		
		6	>7 times		
4.11	Minimum DSCR (for next three years)	1	>2.00 times	DSCR is a debt coverage indicator which reflects the servicing of debt obligation out of the cash generated in future.	• Based on realistic CMA i.e. if analyst feels same is highly optimistic, same can be adjusted and then figure should be taken.
		2	1.50 -2.00 times		
		3	1.25 - 1.50 times		

		4	1 -1.25 times	Minimum DSCR reflect the sensitivity of mismatches in a particular year.	• DSCR = Debt obligation (Interest+ loan repayments)/ (Gross Cash Accruals+ Interest)
		5	<1 times		
4.12	Average DSCR (for next three years)	1	>2.75 times	DSCR is a debt coverage indicator which reflects the servicing of debt obligation out of the cash generated in future. Average DSCR reflect the likelihood of mismatches in next three years.	• Based on realistic CMA i.e. if analyst feels same is highly optimistic, same can be adjusted and then figure should be taken.
		2	2.25-2.75 times		
		3	1.75 - 2.25 times		
		4	1.25 -1.75 times		
		5	<1.25 times		
4.13	Working capital turnover ratio	1	> 5.0 times	It is a liquidity indicator which reflects how effectively entity is using its working capital to generate sales.	• Working Capital turnover = Total Income/Average Net working capital of last two year balance sheet dates • Data as per the latest available financials provided by the entity.
		2	3.5-5 times		
		3	2.0-3.5 times		
		4	1.0-2.0 times		
		5	< 1.0 times		
4.14	Current Ratio	1	2 and above	The current ratio measures the ability of an entity to pay current obligations from current assets. Higher current ratio reflects stronger liquidity.	• Current Ratio = Total Current Assets/Total Current Liabilities • Total current liabilities includes working capital borrowings and current maturity of long term debt • Data as per the latest available financials provided by the entity.
		2	1.33-2		
		3	1.2-1.33		
		4	1-1.2		
		5	Below 1		
4.15	Quick Ratio	1	1 and above	The quick ratio measures the ability of an entity to pay current obligations from highly liquid assets which excludes the inventory. Higher quick ratio reflects stronger liquidity.	• Quick Ratio = (Total Current Assets-inventory)/Total Current Liabilities • Total current liabilities includes working capital borrowings and current maturity of long term debt • Data as per the latest available financials provided by the entity.
		2	0.85 - 1		
		3	0.70 - 0.85		
		4	0.60-0.70		
		5	Below 0.60		
4.16	Average Cash DSCR (for next 3 years)	1	1.5 and above	Cash DSCR is debt coverage cum liquidity indicator which	• Based on realistic CMA i.e. if analyst feels
		2	1.35-1.5		

		3	1.2-1.35	reflects the servicing of debt obligation out of the cash generated in future after meeting the margin requirement for incremental working capital. Average cash DSCR reflect the likelihood of mismatches in next three years.	same is highly optimistic, same can be adjusted and then figure should be taken. • Cash DSCR = Debt obligation (Interest+ loan repayments)/ (Gross Cash Accruals+ Interest – margin commitment (25%) for incremental working capital requirement)
		4	1-1.2		
		5	Below 1		
4.17	Average utilization of working capital limits in last one year	1	< 65%	Utilizations of working capital lines (as against drawing power) provide a good reflection of the liquidity position of the entity. It also shows the cash being generated by the business as lower utilizations means that operations are largely funded out of GCAs	• Based on average utilization of limits as against drawing power during last 12 months. • In case of multiple facilities same should be added i.e. average of monthly utilization of [(average utilization of facility1+ average utilization of facility 2+ so on)/(DP of facility 1+DP of facility 2 + so on)] • In case average utilization is difficult to determine same can be calculated backwards based on interest paid/ interest rate during the month.
		2	65-75%		
		3	75-85%		
		4	85-95%		
		5	> 95%		

Project Risk Parameters

Entity is undertaking project? If Yes whether project size is more than 50% of net-worth as per latest audited balance sheet? (Y / N)	**

	Parameter		Criteria	Rationale	Selection Guide
Pre-Implementation Risk					
5.1	Project Size compared to Networth	1	< 0.5	The scale of the project is critical factor as it determines the level of operational leverage that the entity is presently undertaking and also helps understand the potential risks involved. This has to be looked at along with the financial leverage for superior clarity	• Project size is compared to networth as per latest full year results • TNW (Tangible Net worth) = Equity share capital + Reserve & surplus + Share premium - Misc. Expenditure not written off - intangible assets • Data as per the latest available financials provided by the entity.
		2	0.5 - 1.00		
		3	1.00 - 1.50		
		4	1.50 - 2.00		
		5	> 2.00		
5.2	Project Gearing	1	0.25 - 0.50	Project gearing indicates the level of financial risk (financial leverage) of the project being undertaken. This along with the scale of the project helps determine the potential increase in the overall financial risk of the entity.	• Project Gearing = Debt fund/Promoters contribution After considering unsecured loans from promoters as quasi equity
		2	0.50 - 1.00		
		3	1.00 - 1.50		
		4	1.50 - 2.00		
		5	> 2.00		
5.3	Financial Closure	1	Achieved	Arrangement of funds is the basic requirement to complete the project within	• Financial closure refers to the arrangement of funds for project it includes both equity as well as
		2	Mainly arranged / Not an issue		
		3	In-principal sanctioned		

		4	Mainly pending	time parameters.	debt portion
5.4	Project Implementation Track Record	1	More than two similar project implemented	In past implementation of similar or same project reduces the project execution risk.	• Basis should be on the project executed by the entity or by promoters in associate concerns.
		2	One similar project implemented		
		3	Experience of other projects implementation		
		4	Projects implemented with time or cost overrun		
		5	No experience		
5.5	Stage of implementation (% completed)			Status of project has a direct bearing of project implementation risk i.e. advance stage of project would result in lower project implementation risk but higher post implementation risk.	• Based on the latest cost incurred as per CA certificated compared to total cost proposed. (Don not consider any cost overrun in expenditure already incurred)
Post-Implementation Risk					
5.6	Type of project	1	Expansion	Type of project helps to identify the potential risk involved in the project and also its impact on the overall business of the entity. If it's an expansion, the overall business remains unchanged, while in case of backward / forward integration, the business risk could change depending upon the risks involved in such activities and offsetting of the same on account of synergies in operations. While diversification is riskier	• Selection is to be based on nature of project. In case project is mix of two types then depending upon the cost breakup, type of project would be determined.
		2	Backward / Forward integration		
		3	Related diversification		
		4	Unrelated diversification		

				than integration of activities, unrelated diversification results in significant changes in the overall business activities of the entity.	
5.7	Stabilization of facilities	1	No risk as it uses same technology as present one	Stabilization of facility is important as achievement of envisaged quality and capacity utilization is important to generate cash accruals which are directly linked to debt servicing capability of the entity. High risk in stabilization of facilities would result in time and cost overrun.	• It covers the risk associated with the stabilization of facilities in light of new technology and achievement of desired quality output.
		2	Limited risk as project is of same technology with some updations		
		3	New technology with uncertain outcome		
		4	Unproven indigenous technology with highly uncertain outcome		
5.8	Salability risk (Project production capacity compared to present one)	1	< 0.25 times	Salability risk helps to identify the potential risk involved in achievement of envisaged sales from new project and the extent of marketing and distribution setup required for increased/new capacities.	• It is calculated by Net of captive consumption and assured off-take arrangement with strong company or proportion in sales from the added capacities as a % of existing sales of mfg. or related trading.
		2	0.25 - 0.50 times		
		3	0.50 - 1.00 times		
		4	1.00 - 2.00 times		
		5	> 2.00		
5.9	Raw material / utilities / manpower related issues (availability/non-tie-up) that can hamper production of the project capacities	1	Not an issue	Resource availability is critical for the commencement of project and achievement of envisaged capacity utilization.	• It is to be selected based on the availability of raw materials including fuel, manpower availability and requirement of skilled manpower. • In case of raw material tie-ups, the capability of other partly must be seen though its size of operations and production during last financial year.
		2	Below average risk		
		3	Average risk		
		4	High risk		

5.10	Increase in regulatory / sovereign / forex risk in relation to the project	1	Minor impact	Government intervention and control on prices, taxes, sales quota, subsidies etc. had direct bearing of project execution. Foreign exchange has a direct impact on the profitability of the entity	• Selection should be based on the likely increase in risk related to regulatory requirements and foreign exchange dealings.
		2	Average risk		
		3	High risk		
		4	Very High Risk		
5.11	Time overrun impact	1	No Time overrun/No project loan repayment in next two years / less than 25% time overrun compared to moratorium period	Time overrun has direct impact on the sales and consequently future project related cash flows.	• Time overrun is to be calculated on a particular date after comparing the original schedule and actual progress in the project. Further, it there is likely delay in project over and above the delay as on date and it can be estimated then that should also be added in current level of delay. • Average project loan repayment (includes interest and repayment obligation) = Sum of two years of debt obligations related to project/2 • Cash Accruals to be considered = Cash accruals of last year – scheduled debt obligation of past loans i.e. excluding project loan obligations
		2	Project loan repayment due (Average repayment for next two years) is less than 33% of (present cash accruals less: scheduled repayment of existing debt for next year) for that year		
		3	Project loan repayment due (Average repayment for next two years) is less than 66% of (present cash accruals less: scheduled repayment of existing debt for next year) for that year		
		4	Project loan repayment due (Average repayment for next two years) is less than 100% of (present cash accruals less: scheduled repayment of existing debt for next year) for that year		

		5	Project loan repayment due (Average repayment for next two years) is more than 100% of (present cash accruals less: scheduled repayment of existing debt for next year) for that year		
5.12	Cost overrun impact 1: How much?	1	No Cost overrun/Cost overrun net of equity infusion is less than 10% of cash accruals less scheduled debt repayments and committed capital for capex	Cost overrun has a direct impact on the financial profile of entity. For example, if it is funded from debt it will increase the leverage position whereas if it is funded from cash actuals than it had impact of liquidity position of the entity.	• Adverse impact of cost overruns should be factored in on the basis of - - 1) The deficit in financing after equity infusion for cost overruns 2) The overall cash flows from operations during the tenure of the project 3) The total debt repayments during and subsequent to the project 4) The nature of funding of the increased costs and its effect on future cash flows
		2	Cost overrun net of equity infusion is less than 33% of cash accruals less scheduled debt repayments and committed capital for capex		
		3	Cost overrun net of equity infusion is less than 67% of cash accruals less scheduled debt repayments and committed capital for capex		
		4	Cost overrun net of equity infusion is less than 100% of cash accruals less scheduled debt repayments and committed capital for capex		
		5	Cost overrun net of equity infusion is more than 100% of cash accruals less scheduled debt repayments and committed capital for capex		
5.13	Financial closure for cost overrun achieved?	1	Achieved / NA	Arrangement of funds is the basic requirement to complete the project within time parameters.	• Based on sanction letter/likelihood of sanction
		2	Not achieved		

Notch-up/Notch-down Parameters

	Parameter		Criteria	Rationale	Selection Guide
6.1	Payment track record to banks	1	No delay/default and clean track record	Past track record reflects the probability of default going forward.	• Based on the past bank statements, CIBIL record, RBI defaulters' list and other sources. • Fourth option is also to be selected in case of Criminal cases against directors, Malpractices followed by promoters etc.
		2	Occasional delays/Over-drawings/LC devolvement noticed within the last one year, but no subsisting delays/defaults		
		3	Account was restructured/CDR		
		4	Entity name is present in defaulter list or One or more directors are in CIBIL Defaulter List		
		5	Account is NPA		
6.2	Group Support	1	Very strong group support with entity being a part of large group having sound financials and rated "A" and above	Group support has direct bearing on operational and financial strength of the company under adverse business cycles. Strong group support enhanced the entity's capability to survive in adverse business situations.	• First option is to be selected in case of very strong promoter group with main company being rated "A" band or above by external credit rating agency with clear intention of supporting the group entity. • In case of unrated group entity having strong financials with turnover of over Rs.1000 crore and no external debt, same can be considered for option 1 based on analyst discretion. • Second option is to be selected in case of strong operational linkages or financial support from group companies.
		2	Strong group support with operational linkages/financial support/Marketing and technological support		
		3	No Group Support/No visible benefit derived from group entities		
		4	Part of group which has track record of default or malpractices		
6.3	Reliability of Accounts	1	Reliable with conservative acc. Practices; Acc. Policies remain consistent	Reliability on account would have direct bearing on score obtained as per parameters above i.e. it may reflect incorrect picture therefore same should be discounted.	• Based on the auditors' report and own analysis. Priority given to finance functions/quality of audit/Audit Policies/Notes to Account should be evaluated.
		2	Reliable but inconsistent policies with minor auditors qualification		
		3	Less Reliable/Unaudited results		

Green Parameters

Structure of the technical manual to capture green parameters for integrated credit rating model

The manual presents a guideline for carrying out a survey to collect data for “Green Rating parameters”. The manual intends to impart knowledge on each of the identified “Green” parameters and work as a guiding document for capturing the same. Following approach is adopted to structure the manual

Understanding the Green Rating Framework

- To establish a baseline understanding of "Green Rating Framework"
- To understand the structure of the Green Rating Framework
- To develop an approach towards a particular industry
- Understanding the data to be collected
- Understanding "Green Parameters"

Understanding of the Cluster Setting

- To understand the geographical setting of a cluster- proximity to environmentally sensitive areas/bodies
- Type of clearances generally required by the industries in that particular cluster
- Areas of possible environmental degradation
- Sellers/Vendors requirements from a particular industry . Eg.- Generally ISO 9001 or TS 16949 certification is required from automotive industry. ISO 14001 certification is required from Chemical Industries

Understanding the Industry (Unit)

- Industry Classification- Based on State Pollution Control Board classification
- Understanding of the Industry operations
- Parameters such as size of waste generation, operations; Type of waste generated; SPCB Categorization etc

Understanding and capturing the "Green Parameters"

- Objectifying the rationale pertaining to each parameter- To align the surveyor with the goals of the Green Rating
- Training of the surveyor to effectively capture the 'Green Parameters'- Visual Guidance
- Obstacles that could be encountered- Real life cases
- Tools to capture the Green Parameters

Applying Survey Techniques

To effectively conduct the survey and capture the green interventions and green parameters, the surveyor shall adopt the following approach.

- **Secondary Studies:** To establish and understanding of the general environmental setting of the unit- operations and activities as well as the surrounding areas
- **Interviews with the Management and Workforce:** To establish contact with the management and workforce to collect information in shorter time. Also, some parameters cannot be captured via documentary evidence. However they can easily be captured by interviewing the unit personnel- e.g.- presence of absence of a "Designated Energy Manager"
- **Visual Inspection/ Photographic Evidence:** This exercise enables worker to quickly capture the green interventions. Examples can include- Working/ Non-working of environmental equipment, presence of product testing facilities etc., Use of personal protective equipment (PPE) by the workforce
- **Secondary Research:** It is recommended that surveyor must have prior understanding on cluster as well as unit level to optimize on time and resources. This is to enable the surveyor to carry out the survey after developing a basic understanding of the operations and procedures pertaining to a specific industry. E.g. Whether the industry lies in any of the "Notified Areas" as classified by the CGWB or whether the industry might lie in Red, Orange or Green categories as classified by the State Pollution Control Board (SPCB).
- **Documentary Evidence:** To establish compliance regarding any parameter-documentary evidence provides with the most certain evidence

These tools will be deployed on both cluster level and unit level as exemplified below:

1.1 Cluster Level

Secondary Studies

The surveyor should be aware of the industrial cluster setting. The geographical location, nearby environmentally sensitive areas (forests, water bodies, monuments etc.). This would enable the surveyor to understand the general environmental setting of the industry. This would also enable the surveyor to understand the legal status of the cluster-presence of authorized and un-authorized areas. E.g. the Faridabad cluster consists of many industries established in non-industrial/ unauthorized lands. These industries lack sewer connections, consents from Haryana State Pollution Control Board. If the cluster is located near to an ecologically important land such as forests- a forest clearance might be required. Chemical units in Ankleshwar are finding it hard to obtain necessary clearances for expansion of their plants from the pollution control board due to their critically polluting nature (TERI, 2012)

The surveyor should go through the "Cluster Profile Reports" published by SIDBI. This document can provide Guridance on the surveyor about the Social and Environmental Aspects of the cluster, technologies used and production processes, challenges faced by the cluster, etc.

Based on the secondary studies the surveyor will also be able to establish the

- State Pollution Control Board (SPCB Categorization into various industries: Red, Orange or Green- To establish various environmental requirements for the industrial operations being carried out at the unit
- Operations carried out at the unit- and their pollution causing abilities

Understanding of the cluster activities and understanding on applicable Local and National Regulatory laws pertaining to Environment, Health and Safety.

Understanding the applicable local regulations: It is possible that within a specific locality some state/ location specific environmental regulation(s) has been put up, e.g. Area under the Municipal Corporation of Faridabad & Ballabgarh has been categorized as "Notified areas for control and regulation of ground water"[1] by the Central Ground Water Authority (CGWA), implying that these units will have to apply for a No Objection Certificate (NOC) from the Central Ground Water Board (CGWB) to abstract groundwater for industrial use.

The other important aspects related to local conditions can be:

- The days on which industries are closed (Weekly Holiday, Government Holidays) - To schedule the survey accordingly.
- Industrial Associations active in the particular cluster

1.2 Unit Level

Quick Walkthrough

The surveyor will carry a primary visual evaluation of the unit perimeter to identify the activities which may have affect or pose a potential risk to the environment. This will give a general idea to the surveyor with respect to- Wastewater discharge streams, air emissions from various sources- plant operations, back-up power systems (DG Sets); material handling and storage practices; waste handling, storage and disposal activities; Shop-floor cleanliness and Rain Water Harvesting installations; Sewer connections etc.

Documentary Evidence

To establish the compliance with various green parameters- it is prudent to collect and analyze the documentary evidence. E.g. the various consents issued by the Government, Notices received from the government, air and water testing reports (if applicable). This is the surest way to establish a compliance/non-compliance at a unit.

Some of the documents that could be collected are:

- Consent to operate; Consent to Establish (This can be a combined document)- Review of the activities mentioned therein and their actual implantation at the site
- Company brochure- understand the green interventions carried out at the units such as "Management Certification", year of establishment, clientele etc.
- Management Certification- OHSAS 18001, ISO 14001, ISO 9001 or TS 16949
- Test reports for Air and Water pollution

[1] http://cgwb.gov.in/CGWA/Notified_areas.html

- Registration Certification from NIC
- Proof for ESI/PF
- Energy Audit records, Fire testing/Mock-drill records, If applicable
- HRD Records- Employment register

Visual Inspection and Photographic Evidence

The surveyors will visually inspect various aspects related to the green parameters. This is the fastest way to establish a compliance/ non-compliance. Some parameters that can be captured can be Renewable Energy (RE) installations, Occupational Health and Safety (OHS) related parameters such as workers are wearing PPEs or not, machine safety, etc. These parameters can then be captured through photographs which can then later be used as reference. The photographs can also used to correlate with the industry's ranking

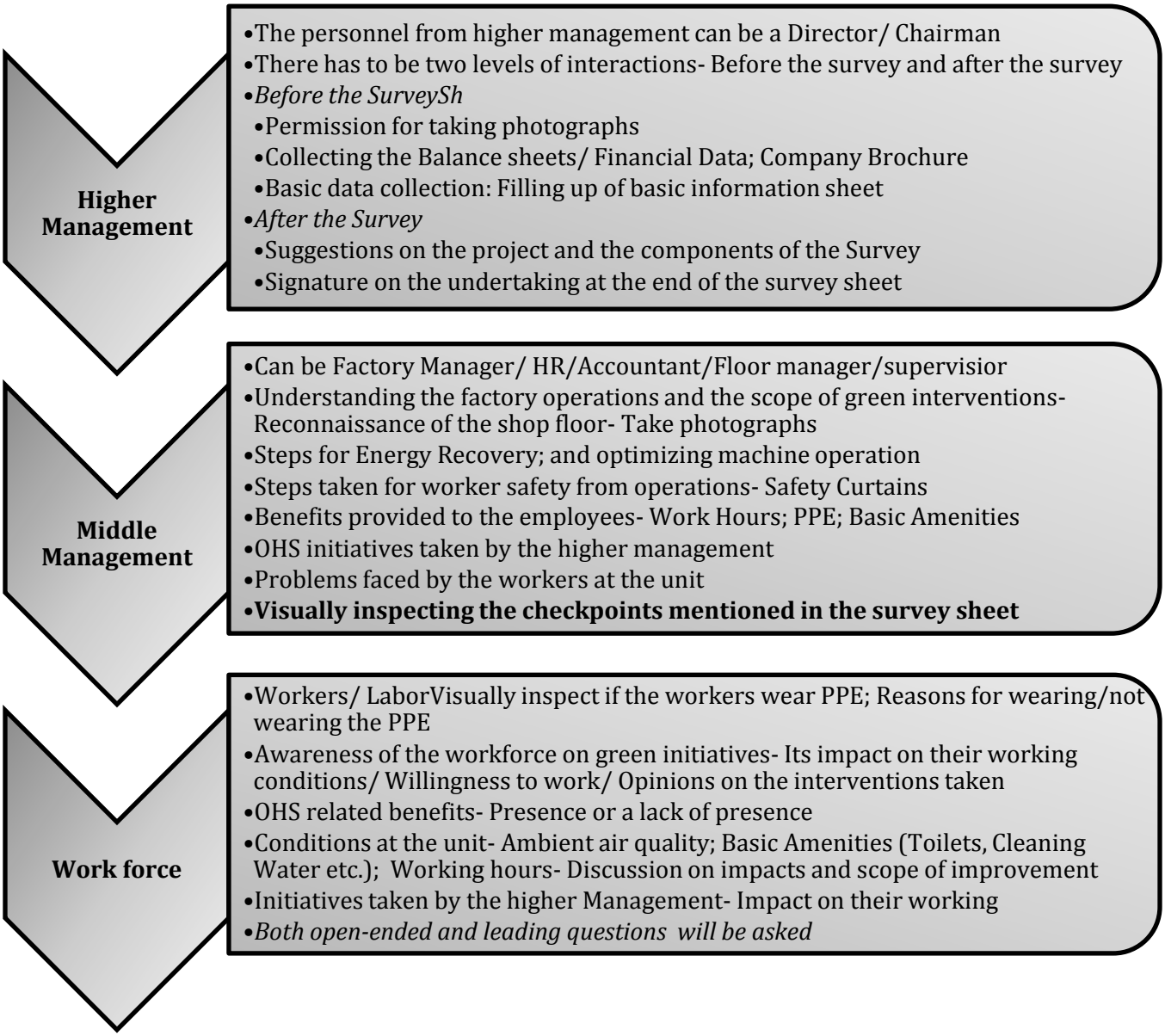
Interviews at the unit-Top/Higher Management, Middle Management, Workforce

Interaction with the management and the workforce is the most important tool to be used by the surveyors. The surveyors will ask the unit to arrange for a company personnel (from either management or workforce) to accompany him/her during the course of the survey.

Some aspects that can be covered using interviews are:

- Areas of non-compliances- To avoid dual verification. E.g. interactions with the employees will establish whether the unit complies with a particular parameter or not- the compliance check can then be carried out for only those parameters which are non-compliant.
- Benefits provided to the labor force- ESI, PF etc.
- Working conditions of the labors- provisions for basic amenities, etc.
- Unit Management- Sole proprietorship, Enterprise, Multiple Shareholders

The people to be interviewed and the method of interaction can be:



The surveyor is advised to refer to "Annexure-1: List of Green Rating Parameters" along with this manual to understand the following sections

General Information Sheet

Prior to the survey for Green Rating, the surveyor has to interact with the higher management/ mid-level management to fill out the 'General Information Sheet". The sheet consists of collecting basic information about the unit. These can be

- Date of Survey
- Name of the Surveyor
- Name of Unit and Address
- Registered Office
- Established in (Year)
- No. of employees

The key points of consideration are

- The survey is being carried out at the unit level and not at the company level- implying that the company may be registered at a different office or can have multiple units, the survey results would be considered for the particular unit. E.g. the green parameters that are to be captured would be specific to a particular unit. E.g. the employee count, benefits provided, consents shall be checked for the particular unit and not for the company as a whole.
- Categorization of the unit into Small or Medium Enterprise
- Establish whether the unit lie under critically polluted areas as defined by CPCB
  - Refer to Annexure-4
- Establish whether the unit fall under Notified Areas as defined by CGWB
  - Refer to Annexure-3
- The names and designation of the people interviewed in this sheet will be filled at the end
  - The surveyor should interview at least one personnel from each category of workforce-
    - Higher Management- Director, Partner, Chairman, President/Vice President etc.
    - Middle Management- Floor manager, Factory manager, supervisor, Accountants etc.
    - Workers- Labor

This would ensure effective and accurate capturing of the green parameters

Guide to the Survey Sheet and Green Parameters

3.1 Format for Guridance on each parameter

Each of the parameter is explained in the section below. The format for each parameter is provided in the sheet below

"Name of the Parameter"-"Parameter Codes mentioned in the Checklist (Annexure-1)"

Air Emissions and Control	AE

Objective- The rationale behind including the Green parameter- This is required to give the surveyor an understanding of the particular parameter and its significance

Verification measures- to capture a particular parameter- This will give Guidance on the surveyor as to which tool can be used to capture the particular parameter

The type of industry- where this parameter is likely to be found

Obstacles- that can be encountered

The following section will provide individual guidance on how to capture each of the parameters during the survey process.

3.2 Air Emissions and Control-AE

Objective: Untreated **a**ir emissions have a direct impact on the environment as well as health of the workers and the community. Workers having chronic contact are the most susceptible to effects of the harmful air emissions

Verification Measures: Visual Inspection, plant documents, Interviews with the workers and management. The surveyor will verify whether the equipment is operational or not.

Documentary verification: The surveyor will check the air emission testing reports. The test reports use National Ambient Air Quality Standards (NAAQS) as reference. i.e. the emission from the unit premises should be less than that specified in the National Ambient Air Quality Standards (NAAQS).

The surveyor shall ask for a copy of Consent to Operate (CTO)/ No Objection Certificate (NOC) from the unit management. The consent to operate consists of various parameters that need to be complied with respect to air pollution control and prevention

The type of industry: Most of the red category industries release air pollutants from their operations. To maintain optimum ambient air conditions proper air ventilation is required to be maintained across the shop floor. Some examples can be- Heavy industries; Chemical Industries; Industries where fugitive emissions are likely- Limekilns, Foundry etc.

Obstacles:

- Improper maintenance of air emission control equipments
- Lack of skilled operators
- Lack of efficient operational procedures
- Lack of interest by the unit owners
- Financial burden on the unit

Guidance on specific parameters	
AE1	The surveyor will first identify the air pollution causing operations and then inspect whether there is a provision for controlling/ preventing air pollution. This will be done through visual inspection of the unit. The surveyor will also inspect the state of the air pollution control equipment- i.e. its functioning or not **Case Scenario:** **Case-1-** The unit has air emission controlling equipment in place but it is not in working condition- The surveyor will give a negative response.
AE2	The surveyor will ask for the air emission test reports from the unit to ascertain the industry is in compliance with the conditions mentioned under the CTO. **Case Scenario** **Case-1-** The unit does not has a CTO but has air pollution control equipment: In this case the surveyor will give a negative response **Case-2-** The unit has CTO and has pollution control equipment but no test reports: The surveyor will give a negative response

3.3 Waste Management, Storage, Transportation and Disposal (all waste except waste water) - WG

Objective: To capture the safe storage, release and appropriate disposal of waste from a unit. The waste released from a unit can be categorized as- Hazardous/Non-Hazardous OR Domestic/ Industrial having a direct bearing on Environment, Health and Safety.

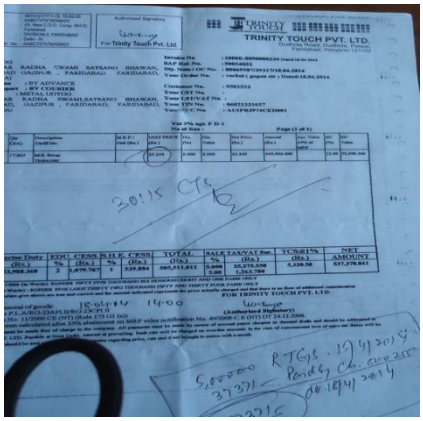
Verification Measures: The surveyor will initially inspect the unit premises to establish the type of waste that can be released. In case no industrial waste is released and only domestic waste is released, the surveyor will establish the compliance by interviewing the unit personnel on sample basis. In case, the released waste of hazardous nature (i.e. from chemical industries), the surveyor will inspect the disposal method adopted by the unit. This can be done by documentary verification- i.e. inspecting the agreement that a unit has with an authorized waste disposal dealer/ center or agreement with another unit to sell the waste as raw material. This can also be assured by checking the receipts issued by the buyer of the hazardous wastes.

Documentary verification: In certain industries, such as Chemical Industries (Ankleshwar Cluster), the unit might require an NOC from the SPCB. In this case the surveyor will inspect whether the conditions for storage and disposal specified in the CTO are being observed or not.

The type of industry: Waste (both industrial and domestic) will be released from all the industries- i.e. Green, Orange and Red. Hence, these parameters are applicable to all the clusters and industries therein. However, hazardous waste is released only from specific set of industries- All these industries will fall under the Red Category industries.

Obstacles:

- Lack of Infrastructure
- Lack of awareness/ Environmental Consciousness
- Financial commitment in setting up waste disposal systems
- Lack of regulatory strictness

Guidance on specific parameters		
WG1		The untreated waste (especially Hazardous waste) from the unit should be kept in a clearly marked or designated area. The rationale behind this is to ensure that no waste should escape to the environment and all the waste is collected and deposited at once place from where it can then be safely disposed off. The surveyor will visually inspect whether the waste is being stored at a designated place or not.
WG2		The surveyor will have to visually inspect whether the waste (from process or cleaning etc.) is being released to the environment or not. The waste should not come in direct contact with rain water or soil resulting in environmental contamination. The evidence should be captured via a photograph.
WG3		The surveyor needs to verify that that the waste resulting from the operations/ domestic waste is not being unsafely released outside the unit's premise. To ensure safe release the unit can sell/ dispose it off to an authorized dealer or sell it as raw material. The surveyor will ensure compliance via interviewing the unit personnel or verifying the agreement that the unit has with a waste disposal agency. In case the unit sells its waste as raw material, the surveyor can verify via inspecting the receipts.

3.4 Water and Waste Water Management – WW

Objective: The objective is to check rampant wastewater release from a unit. The unchecked waste water release can hinder industrial growth to a great extent- with SME units being the most harshly impacted. Addressing the water issues that are deemed financially burdensome could help SMEs in terms of efficiency and profitability in the longer term

Verification Measures: The surveyor will initially inspect the unit premises to establish the nature of wastewater released. In case this it is domestic the surveyor need not check documentary evidence and can establish compliance via visual inspection and photographic evidence.

Documentary verification: However, if the wastewater released is from industrial operations- the surveyor would have to carry out documentary verification to ensure compliance with the norms set up by the Govt. (The specific requirements of water treatment are mentioned under the Consent to Operate given by the SPCB)

The type of industry: Wastewater is released from all the industries- i.e. Red, Orange and Green (Only domestic waste). However, checks are required specifically for Red category industries.

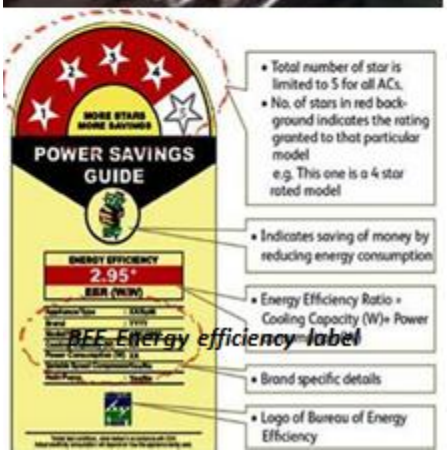
Obstacles:

- Lack of Awareness- Regarding Sustainable Development
- Poor enforcement of environmental regulations
- Lack of incentives for environmental protection measures by the Govt.
- Financial barriers: Inaccessibility of Financing for SME

Guidance on specific parameters		
WW1		The objective of this point is to measure how water efficient/ water conscious the unit is. To increase efficiency and reduce resource consumption, the unit can install flow meters to measure the quantity of water being used in the process. Majority of the units have flow meters only at the inlet and not at the outlet or in the process. Water intensive units such as chemical industries can optimize their water consumption by mapping the water use and thus identifying areas of improvement. The metering should

Guidance on specific parameters	
	include measure inflow and outflow of a stream. The surveyor will visually inspect for installation of flow meters at the inlet as well as outlet for each product line.
WW2a, WW2b, WW2c	The surveyor will first establish from the CTO (also known as NOC) whether the unit is required to treat its waste-water before releasing it outside the facility. The surveyor will then check:  1. Whether the conditions under consent to operate under Water Act are being met 2. The effluent from the unit meets CPCB's industry specific norms as well as the SPCB's waste water norms 3. Whether the waste water is being directly released to the environment without treatment The surveyor will ask for water testing reports from the unit and check the compliance against the standards mentioned under the Consent to Operate. If applicable, the surveyor will check whether the Effluent Treatment Plant (ETP)/ Sewage Treatment Plant (STP) are in working condition or not. In case the unit disposes off its wastewater to a Common Effluent Treatment Plant (CETP), the surveyor will visually inspect the outlet leading to the CETP. The surveyor can establish compliance via documentary evidence too (agreement of the unit with the CETP).
WW3	The surveyor will visually inspect the presence of sewer and sewer connection within the unit. In case the sewer connections present the surveyor will visually inspect if the industrial waste is also being released to the sewer. ***Case Scenarios*** ***Case-1-*** The sewer is present however, the unit does not release its waste to the sewers- The surveyor will give non-compliance ***Case-2-*** The unit releases industrial wastewater directly in sewer without any treatment- The surveyor shall verify from consent to operate whether the wastewater can be released directly or not. ***Case-3-*** The unit has agreement with another unit to dispose of their wastewater through their sewers- The surveyor will verify whether such a system is in place (Documentary/ Visual evidence, if satisfied the surveyor will give positive feedback**.**
WW4 and WW5	The surveyor will visually inspect whether the unit has installed Rain Water Harvesting within its premises. The surveyor will interview the unit personnel to establish whether this water is used for Ground water (GW) recharge or is used in any process as well. In case the rainwater is used in process- the surveyor will give compliance against WW5

3.5 Energy Saving and Efficiency- EE



BEE Energy efficiency label

(Resource Efficiency- Material and Energy Efficiency- EE)

Objective: Resource efficiency is the most crucial parameter for SMEs. It has a direct relation with short term and long term cost benefits, thus SME units are most forthcoming to adopt these measures. It also results in Resource Optimization and therefore has an indirect bearing on environment. These parameters also cover Reduced operating costs; Improved reliability of equipment and manufacturing processes. The other associated benefits for the SME units can be strengthened market position and increased business opportunities. Some measures adopted by the industries can be

- 5s, Benchmarking (mapping) energy and material usage
- Material testing to reduce wastage
- Energy efficient equipment- Star rated appliances- Consider alternative options
- Increased automation
- Energy/ Material recovery
- Use of cleaner fuel
- Using Natural Lighting

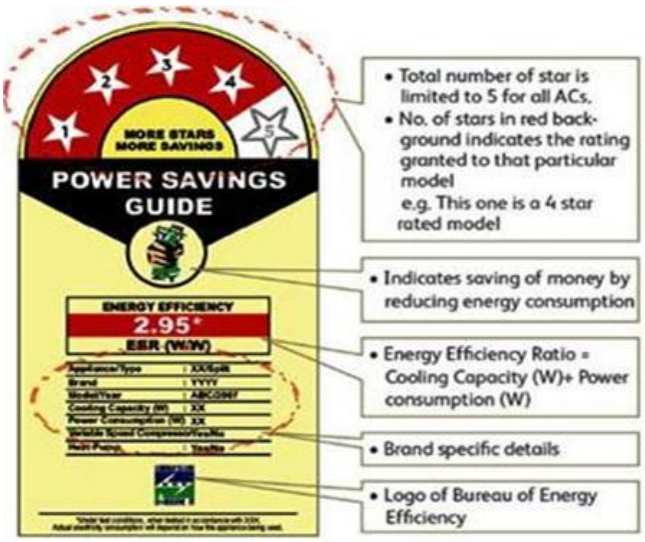
Verification Measures: The surveyor should develop a basic understanding of energy efficient equipments, processes and measures. The most effective way to establish compliance under these parameters can be a site tour with the factory/floor manager. The surveyor will ask the floor manager to explain each operation being carried out at the unit in detail and the surveyor can then ask specific measures taken in each of the operations to optimize on resources- energy, material, time etc.

Documentary verification:

The type of industry: Energy efficiency is prudent to each and every industry. However, medium sized industries are more likely to adopt these measures.

Obstacles:

- Poor use of information, tools and training available
- Lack of financial and human resources
- Limited regulatory pressure
- Lack of awareness of higher management

Guidance on specific parameters	
EE1	The objective is to measure the electricity consumption at the process level and not the total consumption of the energy by the facility. The surveyor will measure whether the unit measure energy consumption at sub process level. This can be inspected by energy meters installed on various machines, operation lines or energy logbooks, if maintained by the unit.
EE2	During the tour of the unit, the surveyor will understand the operations being carried out at the unit. The surveyor will interview the floor manager and visually inspect the energy/heat/resource recovery processes being carried out at the unit
EE3	 The surveyor will visually inspect the installation of BEE certified energy saving appliances. These can be ACs, Fans and Refrigerators. The surveyor will give compliance if the appliance is minimum 4 star rated. To establish this, the surveyor should look for the image shown herein ***Case Scenarios*** ***Case-1-*** Not all the appliances are 4-star rated or above. In this case the surveyor will give non-compliance
EE4	 The surveyor will visually inspect whether the unit has installed LEDs/CFL lighting in the factory. Photographic evidence shall be captured. The surveyor should interview the factory personnel to ensure that the LED lights work ***Case Scenarios*** ***Case-1-*** Not all the lights are LEDs/CFLs- In this case if the unit has sufficient number of LEDs/CFLs, the surveyor will give a positive feedback.
EE5	 The surveyor shall visually inspect whether the unit is using natural lighting in the day time. This can be done via sun-roofing (image below) or strategically placed large windows. Sun-roofing can be done by either setting up big windows in the shop floor or by providing transparent weather-proof sheets at the roof through which sunlight can pass. This is done to conserve electricity from lighting

Guidance on specific parameters	
EE6	 The surveyor will visually inspect whether the unit has internal testing facility to improve the product quality. Either by getting its materials (in process, final product or raw material) etc. tested. E.g. Some units test the raw material through ted from an external laboratory or test it internally. Similarly testing can be done for the final product. This is done to ensure that there is very less rate of rejection and therefore reduced wastage of resources. ***Case Scenario*** ***Case-1-*** There is no in-house testing available in the unit. The unit however, gets its raw material/ final product tested from an external laboratory- The surveyor will record this as positive feedback
EE7	The surveyor will interview the top management to verify if there is a designated person deployed by the unit to cover the energy management at the unit. ***Case Scenario*** ***Case-1-*** There is a dedicated energy manager but not designated- The surveyor will consider this as non-compliance.

3.6 Renewable Energy - RE

Objective: Renewable Energy (RE) installation is its direct impact on reduction of the impact on climate change by help reducing GHG emissions. RE installations are indicators of SME unit's environmental consciousness.

Verification Measures: The surveyor will visually inspect whether any solar installation has been made in the unit's premises

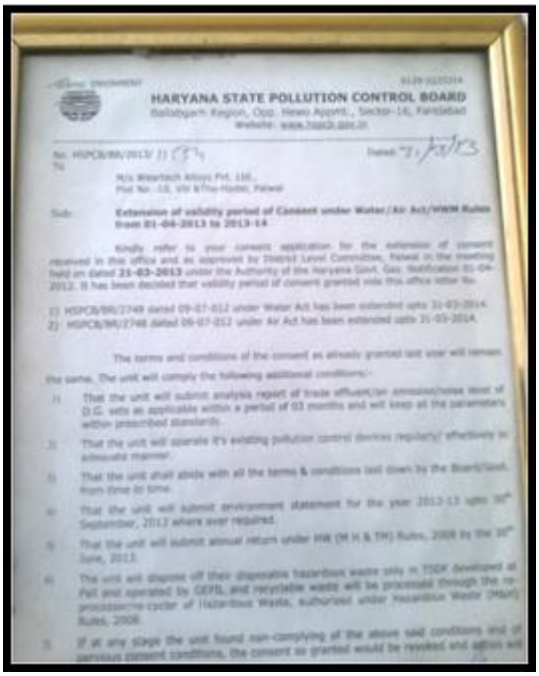
The type of industry: Solar installations are to be inspected at all units. However, it is likely to be present at medium sized enterprises.

Obstacles:

- Low ROI and long term results
- Lack of Technology demonstration
- Niche Field- Lack of knowledge/information

Guidance on specific parameters	
RE1	The surveyor will visually verify whether there is a Renewable Energy installation such as Solar installations (Roof top PV/ Solar Water heater etc.) ***Case Scenario*** ***Case-1***- RE is installed but is not functional- In this case the surveyor will give negative feedback

3.7 Environmental compliance- EC


HARYANA STATE POLLUTION CONTROL BOARD

Objective: The objective is to check whether the unit is in compliance with the applicable local and national regulations. Compliance with theses parameters will ensure-

- Baseline improvement in environmental conditions
- Better working conditions- inside and outside of the facility

Whereas, non-compliance at a unit can result in

- Penalties- Financial
- Temporary halt in operations
- Permanent Closure

Documentary verification: Verify whether the unit has valid Consents- Consent to Operate/ Consent to Establish/ NOC from the SPCB- Documentary Evidence. The surveyor will ask the unit management to provide with a copy of Consent to Operate, Consent to Establish, a sample copy of MSDS etc.

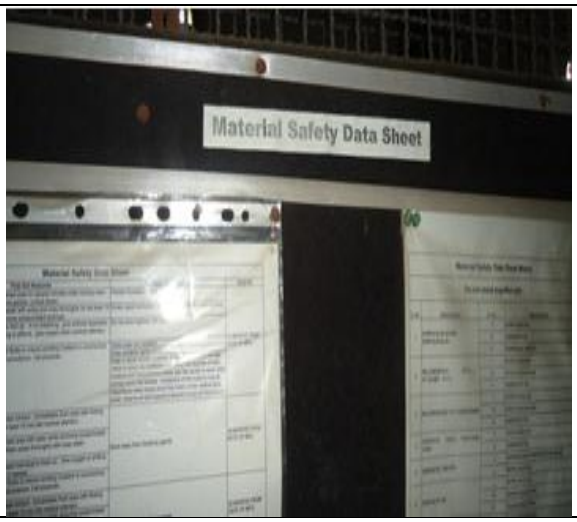
The surveyor will then study the CTO/CTE/NOC to understand if the provisions are followed or not

The type of industry: Relevant Consents are to be provided with each and every unit

Obstacles:

- The units are constructed on unauthorized land
- The Consents are not renewed

Guidance on specific parameters	
EC1	The surveyor will visually inspect whether Material Safety Data Sheet (MSDS) is displayed at relevant locations or not. MSDS is a sheet provided with hazardous chemicals. It is a sheet containing details of the steps that can be taken when an accident occurs. for hazardous chemicals stored at the unit is provided or not

Guidance on specific parameters	
	 The MSDS is a sheet provided with hazardous chemicals. It is a sheet containing details of the steps that can be taken when an accident occurs. ***Case Scenario***- ***Case-1***- MSDS is not available but there are adequate safety signage and slogans- The surveyor will give positive feedback
EC2	The Surveyor will interview top management and ask if the unit has received any warning/notice in lieu of any violation made under any law related to Environment Health and Safety. Apart from the Top Management, the surveyor will also interview factory manager and a person from workforce. An indicative list of these laws is: a. The Water (Prevention and Control of Pollution) Act, 1974 as amended b. The Water (Prevention and Control of Pollution) Rules, 1975 as amended c. The Water (Prevention and Control of Pollution) CESS Act, 1977 as amended d. The Air (Prevention and Control of Pollution) Act, 1981 as amended e. The Environment (Protection) Act, 1986 as amended f. Manufacture, Use, Import, Export and Storage of Hazardous Micro Organisms Genetically Engineered Organisms or Cells, 1989 as amended g. Hazardous Wastes (Management and Handling) Rules, 1989 as amended h. The Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended i. The Noise Pollution (Regulation and Control) Rules, 2000 as amended ***Case Scenario*** ***Case-1-*** Unit received a notice from a Govt. Dept however, no action was taken- The surveyor will give negative marks.
EC3	The surveyor will verify if the unit holds a "valid" consent to establish and consent to operate under the Air act, Water act and the hazardous waste rules(if applicable) given by the SPCB. The surveyor will ask the unit management to provide with a copy of the consent to operate. The surveyor will then ascertain the conditions mentioned under the consent are followed or not.

3.8 Occupational Health, Safety and Social Parameters -OHS

Objective: The primary reason to term these parameters as "Green" is that the SME units are driven by its work-force- Optimizing the working conditions directly results in work efficiency and hence overall resource efficiency. The other reason to include these parameters is to make the overall checklist exhaustive. Also, the SMEs with good OHSS practices indicate consciousness towards efficiency- thus is more prone to adopt environment friendly measures. Compliance with these parameters promote safety and prevention of industrial accidents- Thus indirectly bearing effect on operations

Verification Measures: The verification will involve exhaustive interviews with the workforce. The surveyor will visually inspect and interact with a large fraction of the workforce. The surveyor shall also interview at least one person each from higher and middle management.

Documentary Verification: The surveyor will verify the benefits provided to the workers via documentary evidence

The type of industry: Relevant in each and every unit

Obstacles:

- Lack of OHS structure- no safety committees, safety manager, bare minimal availability of PPE
- Lack of regulatory strictness
- Financial limitations
- Lack of formal training in operations - Lack of educations amongst the workforce
- Inferior inspection services- resulting in poorer working environments

Guidance on specific parameters	
OHS1	 The surveyor will visually establish whether there is adequate lighting at the unit (both at office and shop floor). The adequacy of lighting is up to the discretion of the surveyor. A ready reference can be 20 Lux.
OHS2a,	The surveyor will carry a quick walkthrough tour of the unit to establish whether there

Guidance on specific parameters	
OHS2b	is provision for exhaust air fans in the unit. The surveyor will also compare the ambient air quality at the shop floor and the air outside the shop floor. Using his best judgment to establish whether the quality of air is suitable for working
OHS3	 The surveyor will visually inspect whether there are safety signage provided at areas of accidents and hazards such as high voltages, chemical storages, heavy machinery, slippery floor etc.
OHS4a, OHS4b	The surveyor will interview the site personnel and top management for their awareness about fire safety precautions. The surveyor will verify whether the unit has carried out any mock drills and what is the frequency of mock drills. The surveyor can also verify from the mock drill records, if available with the unit
OHS5	 The surveyor will inspect whether the unit is equipped with adequate number of fire safety precautions such as fire extinguishers, fire exits, fire alarms, fire buckets etc. The surveyor will also check whether the fire extinguishers are not expired
OHS6	 The surveyor will check for machine safety precautions provided in the shop floor. E.g. Some machines may have safety curtains, switch-off button at both end, alarm button, restricted access, machine guards etc.
OHS7	They surveyor will interview shop floor personnel and verify that no child labor is employed. A child equal or below the age of 14 years is qualified to be designated as child labor. This can also be established using HRD records (Muster Roll)

Guidance on specific parameters		
OHS8		They surveyor will verify: 1. Adequate no. of Personal Protective Equipment (PPE) is provided to the workers 2. Adequate type of PPE is provided to the workers The PPE can vary with the type of processes being carried out
OHS9-a, OHS9-b		The surveyor will carry a walkthrough and interview the shop floor workers to establish whether adequate toilets and water facilities are provided in all seasons
OHS10	The surveyor will interview the shop floor workers and higher management to establish whether legal benefits such as Maternity, ESI, PF etc. are provided to them	
OHS11	The surveyor will interview the shop floor workers as well as the higher management to establish the number of permanent and contract laborers.	

3.9 External Quality Certifications


QMS MANUAL

Quality Policy & Objectives

Quality Policy

Quality Objectives

1) To achieve Continual & Diverse growth with existing & New Customers in India and Abroad.
2) To continually upgrade facilities and system by inducting new Technologies, Resources, Softwares & Automizing existing processes.
3) To reduce Cost of Quality by reducing waste, rejection and rework continously.
4) To generate enough Resources & Systems and to have Crisis & Risk Management Plans while mainting flexibility such as to meet Customer delivery requirements timely even during peak Capacity & Simultaneously maintaining Viability.
5) To implement Lean & & 5S and impart Training to all employees for continuous improvement all around.
6) To continually improve combined satisfaction Survey Index.

R. K. Bhatia (Chairman)

Objective: Compliance with the conditions specified under these management certifications ensures increased resource and energy efficiency. Moreover, the units availing these certifications are generally environmentally conscious units

Documentary verification: The surveyor will verify the certificates issued for implementing these management systems.

The type of industry: Relevant Consents are to be provided with each and every unit. However, these certifications are easily available with Medium category industries. Automotive part making and Heavy industries generally have TS16949 or ISO 9001 certification. Chemical industries generally have both ISO 14001 and ISO 9001 certification.

Obstacles:

- Difficult to maintain the standards specified
- Financial burden
- Resource- Manpower and financial shortcomings

Guidance on specific parameters	
EQC1	The surveyor will verify if the unit holds a valid certificate of quality management system. The quality certificate can be ISO 9001, TS 16949 etc. ***Case Scenario:*** ***Case-1-*** The certificate with the unit is a different standard but relates to quality- The surveyor will record this as positive feedback ***Case-2-*** The unit have management certificates but they are expired- The surveyor shall provide with negative feedback
EQC2	The surveyor will verify if the unit holds a valid certificate of Environment management system. The quality certificate can be ISO 14001

3.10 Negative Parameters

It factor in the track record of the entity in term of compliance to various norms of Environment protection Act and related acts and severity of penalties and sanctions imposed by the authority.

Objective: The parameters discounts the score obtained to penalize the entities who were non-compliant in past.

Documentary verification: The surveyor will verify the records kept in this regard.

The type of industry: Relevant in each and every unit

NP1	Have unit remained closed for more than 1 month cumulatively in past 1 year due to violation/non compliance of any laws related to environment, health & safety, Child labor, Air emissions and water treatment.
NP1	If NP1 is No, then Have unit remained closed for more than 1 month cumulatively in past 3 years due to violation/non compliance of any laws related to environment, health & safety, Child labor, Air emissions and water treatment.

Annexure-1: Green Rating Parameters

Category	Code	Question (please refer to the Annexure before administering this questionnaire)	Response			Verification measure
			Yes	No	Not Applicable	
Air Emissions	**AE1**	Has the unit installed pollution control measures to check release of air pollutants into the atmosphere? [Use of Venturi Scrubber/Simple Scrubber, Bag filters, Electro Static Precipitators (ESP) etc.]				Physical verification at site
	AE2	Does the unit comply with SPCB/CPCB's industry specific norms for air emissions?				Test reports for Ambient Air, Indoor Air (as prescribed in the Consent To Operate)
Waste Management, Storage, Transportation and Disposal (all waste except waste water)	**WG1**	Does the unit keep its generated waste at a designated place?			-	Physical verification at site/interviews
	WG2	Is the area of waste storage is adequately covered to stop leakages/ runoff of chemicals during rains?				Physical verification at site/interviews
	WG3	Does the unit ensure that the waste/byproducts leaving the premises of the unit are safely disposed off?				Physical verification at site/interviews
Water and Waste Water Management	**WW1**	Does the unit map its water consumption (through flow meters) for each of industrial processes?				(Will be verified through Interviews/ Visual Inspection)
	WW2a	Is the unit required to treat its process waste water as per the Consent to Operate (CTO)[2]				Copy of CTO
	WW2b	Does the unit treat its effluent before releasing it outside the physical boundary of the unit?				Waste water testing report
	WW2c	Does the waste water released exceed any limit specified in the waste water standards issued by the SPCB/CPCB?				Waste water testing report
	WW3	Does the unit disposes off all waste water through sewer system?				Physical verification at site/interviews
	WW4	Is Rain Water Harvesting (RWH) installed in the unit premises?				Physical verification at site

[2] No score for this question

Category	Code	Question (please refer to the Annexure before administering this questionnaire)	Response			Verification measure
			Yes	No	Not Applicable	
	WW5	Does the unit use Rain Water Harvesting (RWH) system to meet its water demand (either partially or fully)?				Physical verification at site
Energy Saving and Efficiency	**EE1**	Is there a provision for mapping 'energy use' at process level, through energy meters?				Physical verification at site/Logbooks
	EE2	Is there recovery of energy/heat at any stage within the process?				Physical verification at site/interviews at shop floor
	EE3	Does the unit use star rated utility appliances (e.g. refrigerators, ACs etc.) with rating 4 or above?				Physical verification at site
	EE4	Does the unit use any energy efficient lighting source (CFL/LED) in the offices?				Physical verification at site
	EE5	Does the unit utilizes natural light for lighting purposes - Sun roofing, Sun facing big windows				Physical verification at site
	EE6	Is there product testing facility available at the SME unit?				Physical verification / interviews
	EE6.a	Raw material testing				Physical verification / interviews
	EE6.b	Product testing (at any stage of production)				Physical verification / interviews
	EE7	Does the unit employ a designated energy manager or energy team?				Site Interviews with the higher management
Renewable Energy	**RE1**	Has the unit installed any renewable energy system (Solar etc.) within the premises?				Physical verification at site/installation documents
Environmental compliance	**EC1**	Does the unit display Material Safety Data Sheets (MSDS) for hazardous materials/chemicals being stored within the facility?				Physical verification at site, validate to visit the chemicals stocking site.
	EC2	Has the facility ever received any notice in violation of any of the laws mentioned in the description (Laws relevant to Environment Health and Safety)?				_ Interviews with the higher management
	EC3	Does the unit has all the valid consents from the State Pollution Control Board) SPCB?				Copy of Consent to Operate (CTO) and Consent to Establish (CTE) issued by the State Pollution Control

Category	Code	Question (please refer to the Annexure before administering this questionnaire)	Response			Verification measure
			Yes	No	Not Applicable	
						Board
Occupational Health, Safety and Social	OHS1	Is there a provision for adequate lighting in the unit?				Physical verification at site
	OHS2-a	Is there provision to ensure circulation of clean air (exhaust fans, air conditioning etc.) on the shop floor?				Physical verification at site
	OH2-b	What was the quality of air at the time of visit?	Good	Bad	No comments	Compare the air quality by walking into the shop floor and compare it with air quality in the office/ outside. Comment based on your judgment.
	OHS3	Are there safety signs, slogans and markings at the shop floor (fire exits, electrical equipments, high voltage etc.)?				Physical verification at site
	OHS4-a	Any fire Mock drill carried out in the unit?				Safety records/Interviews with the unit personnel
	OHS4-b	Frequency of Mock drills. (Unit will get positive points if the duration between two drills is ~ 6 months). Zero points if this is ~1` year. Negative points if > 2 years				Safety records[3]/ Interviews with the site personnel
	OHS5	Are there adequate fire management measures (Fire Extinguishers, fire exits etc.) in place?				Physical verification at site
	OHS6	Is there adequate provision of mechanisms to make sure that labors are safe from moving parts of machines? (A Safety sensor, safety enclosures, grills etc.)				Physical verification at site
	OHS7	Does the unit employ any child labor?				Physical verification at site/interviews
	OHS8	Does the labor use PPPs (personal protective equipments) on the shop floor?				Physical verification at site
	OHS9	Is there provision of basic amenities to the workers (e.g. drinking water, toilets)				Physical verification at site
	OHS 9-	Quality of Basic Amenities: Water	Good	Bad	No	Walk to the water dispenser, see and

[3] Unit will get positive points if the duration between two drills is ~ 6 months). Zero points if this is ~1` year. Negative points if > 2 years.

Category	Code	Question (please refer to the Annexure before administering this questionnaire)	Response			Verification measure
			Yes	No	Not Applicable	
	a				comments	comment
	OHS 9-b	Quality of Basic Amenities: Toilets	Good	Bad	No comments	Walk to the toilet, see and comment
	OH10	Does the unit provide legal benefits like ESI, PF, maternity, insurance benefit to the workers?				Interviews with shop floor persons at site
	OHS11	What is the % of labors under contractual agreement? (<33 % is under tolerance limit, gets 1 point, 33-66% gets 0 points and >66% gets negative points)				HRD records
External Quality Certifications	**EQC1**	Does the unit hold any 'valid' quality assurance certificate (e.g. ISO 9001, TS 16949 etc.)?				Verification of certificate
	EQC2	Does the unit hold 'valid' ISO14001 Certificate[4]?				Verification of certificate
Negative parameter	**NP1**	Have unit remained closed for more than 1 month cumulatively in past 1 year due to violation/non compliance of any laws related to environment, health & safety, Child labor, Air emissions and water treatment.				Records/Interviews with the unit personnel
	NP1	If NP1 is No, then Have unit remained closed for more than 1 month cumulatively in past 3 years due to violation/non compliance of any laws related to environment, health & safety, Child labor, Air emissions and water treatment.				Records/Interviews with the unit personnel

[4] +1 point for "Yes" and 0 for "No". There will be no negative marking.

Annexure-2: Definition of Red, Orange and Green Category Industries

For industry categorization please refers to:

http://mpcb.gov.in/images/pdf/CategorizationCPCB.pdf

Red Industries

- All those industries which discharge effluents of a polluting nature at the rate of more than 500 kl/day and for which the natural course for sufficient dilution is not available, and effluents from which cannot be controlled with suitable technology.
- All such industries employing ≥ 500 persons/day.
- All such industries in which the daily consumption of coal/fuel is ≥24 MT/day

Green Industries

- All such non-obnoxious and non-hazardous industries employing ≥ 100 persons. The obnoxious and hazardous industries are those using inflammable, explosive, corrosive or toxic substances.
- All such industries which do not discharge industrial effluents of a polluting nature and which do not undertake any of the following process:
    - Electroplating;
    - Galvanizing;
    - Bleaching;
    - Degreasing;
    - Phosphate;
    - Dyeing;
    - Pickling, tanning;
    - Polishing;
    - Cooking of fibers and Digesting;
    - Designing of Fabric;
    - Unhairing, Soaking, deliming and bating of hides;
    - Washing of fabric;
    - Trimming, Puling, juicing and blanching of fruits and vegetables;
    - Washing of equipment and regular floor washing, using of considerable cooling water;
    - Separated milk, buttermilk and whey;
    - Stopping and processing of grain;
    - Distillation of alcohol, stillage and evaporation;
    - Slaughtering of animals, rendering of bones, washing of meat;
    - Juicing of sugar cane, extraction of sugar, Filtration, centrifugation, distillation;
    - Pulping and fermenting of coffee beam;
    - Processing of fish;
    - Filter back wash in D.M. Plants exceeding 20 K.I. per day capacity;

    - Pulp making, pulp processing and paper making Cocking of coal washing of blast furnace flue gases;
    - Stripping of oxides;
    - Washing of used sand by hydraulic discharge;
    - Washing of latex etc.;
    - Solvent extraction.
- All such industries which do not use fuel in their manufacturing process or in any subsidiary process and which do not emit fugitive emissions of a diffused nature.

Orange Industries

- All such industries which discharge some liquid effluents (below 500 kl/day) that can be controlled with suitable proven technology.
- All such industries in which the daily consumption of coal/fuel is less than 24 MT/day and the particulars emissions from which can be controlled with suitable proven technology.
- All such industries employing not more than 500 persons.

Annexure-3: List of Notified Areas for Control and Regulation of Ground Water

Sr No	Place/Block/Mandal/Taluka	District	State/ U.T.	Date of Notification
1	Tirupathi (Rural)	Chittor	Andhra Pradesh	5.12.2005
2	Vempalli	Cuddapah	Andhra Pradesh	5.12.2005
3	Midjil	Mahabubnagar	Andhra Pradesh	5.12.2005
4	Chimathur	Anantapur	Andhra Pradesh	'27.11.2012
5	Narpala(NC)	Anantapur	Andhra Pradesh	'27.11.2012
6	Vailpoor (NC)	Nizamabad	Andhra Pradesh	'27.11.2012
7	Giddaluru	Prakasam	Andhra Pradesh	'27.11.2012
8	Union Territory of Diu	Diu	Diu & Daman UT	17.10.1998
9	Gandhinagar taluka (aquifer below 200 mbgl declared as notified for meeting drinking and domestic requirements)	Gandhinagar	Gujarat	2.09.2000
10	Kalol	Gandhinagar	Gujarat	'27.11.2012
11	Mansa	Gandhinagar	Gujarat	'27.11.2012
12	Mahesana	Mahesana	Gujarat	'27.11.2012
13	Badra	Bhiwani	Haryana	13.08.2011
14	Tohana	Fatehabad	Haryana	13.08.2011
15	Entire Gurgaon District	Gurgaon	Haryana	13.08.2011
16	Gulha	Kaithal	Haryana	13.08.2011
17	Ladwa	Kurukshetra	Haryana	13.08.2011
18	Pehowa	Kurukshetra	Haryana	13.08.2011
19	Bapoli	Panipat	Haryana	13.08.2011
20	Rania	Sirsa	Haryana	13.08.2011
21	Municipal Corporation of Faridabad & Ballabgarh	Faridabad	Haryana	14.10.1998
22	Karnal	Karnal	Haryana	2.12.2006
23	Shahbad	Kurkshetra	Haryana	2.12.2006
24	Nangal Chowdhary	Mahendragarh	Haryana	2.12.2006
25	Narnaul	Mahendragarh	Haryana	2.12.2006
26	Samalkha	Panipat	Haryana	2.12.2006
27	Khol	Rewari	Haryana	2.12.2006
28	Rajaund	Kaithal	Haryana	'27.11.2012
29	Ellenabad	Sirsa	Haryana	'27.11.2012
30	Badami	Bagalkote	Karnataka	'27.11.2012
31	Bagalkote(P)	Bagalkote	Karnataka	'27.11.2012
32	Anekal	Bangalore (U)	Karnataka	'27.11.2012
33	Bangalore (N)	Bangalore (U)	Karnataka	'27.11.2012
34	Bangalore (S)	Bangalore (U)	Karnataka	'27.11.2012
35	Devanhalli	Bangalore(R)	Karnataka	'27.11.2012
36	Dod Ballapur	Bangalore(R)	Karnataka	'27.11.2012
37	Hoskote	Bangalore(R)	Karnataka	'27.11.2012

38	Nelamangala(P)	Bangalore(R)	Karnataka	'27.11.2012
39	Ramdurg	Belgaum	Karnataka	'27.11.2012
40	Raybag(P)	Belgaum	Karnataka	'27.11.2012
41	Gadag(NC)	Gadag	Karnataka	'27.11.2012
42	Bangarapet	Kolar	Karnataka	'27.11.2012
43	Chik Ballapur	Chikballapur	Karnataka	'27.11.2012
44	Chintamani	Chikballapur	Karnataka	'27.11.2012
45	Gauribidanur	Chikballapur	Karnataka	'27.11.2012
46	Gudibanda	Chikballapur	Karnataka	'27.11.2012
47	Malur	Kolar	Karnataka	'27.11.2012
48	Mulbagal	Kolar	Karnataka	'27.11.2012
49	Sidlaghhatta	Chikballapur	Karnataka	'27.11.2012
50	Koratagere(P)	Tumkur	Karnataka	'27.11.2012
51	Madhugiri(P)	Tumkur	Karnataka	'27.11.2012
52	Dhar	Dhar	Madhya Pradesh	2.12.2006
53	Manawar	Dhar	Madhya Pradesh	2.12.2006
54	Indore Municipal Corporation	Indore	Madhya Pradesh	2.12.2006
55	Mandsaur	Mandsaur	Madhya Pradesh	2.12.2006
56	Sitamau	Mandsaur	Madhya Pradesh	2.12.2006
57	Neemuch	Neemuch	Madhya Pradesh	2.12.2006
58	Jaora	Ratlam	Madhya Pradesh	2.12.2006
59	South District	South	NCT, Delhi	15.08.2000
60	South West District	South West	NCT, Delhi	15.08.2000
61	Yamuna Flood Plain Area	Dehli	NCT, Delhi	2.09.2000
62	Puducherry	Puducherry	Puducherry UT	'27.11.2012
63	Ludhiana City	Ludhiana	Punjab	11.12.1998
64	Nakodar	Jalandhar	Punjab	13.08.2011
65	Shahkot	Jalandhar	Punjab	13.08.2011
66	Lohian	Jalandhar	Punjab	13.08.2011
67	Phagwara	Kapurthala	Punjab	13.08.2011
68	Khanna	Ludhiana	Punjab	13.08.2011
69	Nihalsinghwala	Moga	Punjab	13.08.2011
70	Pattran	Patiala	Punjab	13.08.2011
71	Dhuri	Sangrur	Punjab	13.08.2011
72	Sunam	Sangrur	Punjab	13.08.2011
73	Barnala	Sangrur	Punjab	13.08.2011
74	Sherpur	Sangrur	Punjab	13.08.2011
75	Malerkotla	Sangrur	Punjab	13.08.2011
76	Moga-I	Moga	Punjab	2.12.2006
77	Moga-II	Moga	Punjab	2.12.2006
78	Sangrur	Sangrur	Punjab	2.12.2006
79	Mahal Kalan	Sangrur	Punjab	2.12.2006
80	Ahmedgarh	Sangrur	Punjab	2.12.2006
81	Ajnala	Amritsar	Punjab	'27.11.2012
82	Patti	Taran taran	Punjab	'27.11.2012

83	Tarn Taran	Taran taran	Punjab	'27.11.2012
84	Amloh	Fatehgarh Sahib	Punjab	'27.11.2012
85	Khamano	Fatehgarh Sahib	Punjab	'27.11.2012
86	Khera	Fatehgarh Sahib	Punjab	'27.11.2012
87	Tanda	Hoshiarpur	Punjab	'27.11.2012
88	Bhogpur	Jalandhar	Punjab	'27.11.2012
89	Goraya/Rurka kalan	Jalandhar	Punjab	'27.11.2012
90	Jalandhar east	Jalandhar	Punjab	'27.11.2012
91	Jalandhar west	Jalandhar	Punjab	'27.11.2012
92	Nurmahal	Jalandhar	Punjab	'27.11.2012
93	Phillaur	Jalandhar	Punjab	'27.11.2012
94	Bholath/Nadala	Kapurthala	Punjab	'27.11.2012
95	Dhilwan	Kapurthala	Punjab	'27.11.2012
96	Kapurthala	Kapurthala	Punjab	'27.11.2012
97	Sultanpur	Kapurthala	Punjab	'27.11.2012
98	Pakhowal	Ludhiana	Punjab	'27.11.2012
99	Bhikhi	Mansa	Punjab	'27.11.2012
100	Budhlada	Mansa	Punjab	'27.11.2012
101	Sardulgarh	Mansa	Punjab	'27.11.2012
102	Aur	Nawan Shahr	Punjab	'27.11.2012
103	Banga	Nawan Shahr	Punjab	'27.11.2012
104	Patiala	Patiala	Punjab	'27.11.2012
105	Sanaur	Patiala	Punjab	'27.11.2012
10	Morinda	Ropar	Punjab	'27.11.2012
107	Bhawaniagarh	Sangrur	Punjab	'27.11.2012
108	Jhotwara	Jaipur	Rajasthan	12.12.1999
109	Pisangan	Ajmer	Rajasthan	13.08.2011
110	Baetu	Barmer	Rajasthan	13.08.2011
111	Rajgarh	Churu	Rajasthan	13.08.2011
112	Sambher	Jaipur	Rajasthan	13.08.2011
113	Govindgarh	Jaipur	Rajasthan	13.08.2011
114	Sanganer	Jaipur	Rajasthan	13.08.2011
115	Bassi	Jaipur	Rajasthan	13.08.2011
116	Amer	Jaipur	Rajasthan	13.08.2011
117	Shahpura	Jaipur	Rajasthan	13.08.2011
118	Sayala	Jalore	Rajasthan	13.08.2011
119	Sanchore	Jalore	Rajasthan	13.08.2011
120	Nawalgarh	Jhunjhunu	Rajasthan	13.08.2011
121	Udaipurwati	Jhunjhunu	Rajasthan	13.08.2011
122	Jhunjhunu	Jhunjhunu	Rajasthan	13.08.2011
123	Osian	Jodhpur	Rajasthan	13.08.2011
124	Bhopalgarh	Jodhpur	Rajasthan	13.08.2011
125	Bilara	Jodhpur	Rajasthan	13.08.2011
126	Mandore	Jodhpur	Rajasthan	13.08.2011
127	Todabhim	Karauli	Rajasthan	13.08.2011

128	Merta	Nagaur	Rajasthan	13.08.2011
129	Behror	Alwar	Rajasthan	2.12.2006
130	Bhinmal	Jalore	Rajasthan	2.12.2006
131	Surajgarh	Jhunjhunu	Rajasthan	2.12.2006
132	Dhod	Sikar	Rajasthan	2.12.2006
133	Shri Madhopur	Sikar	Rajasthan	2.12.2006
134	Pushkar Valley	Ajmer	Rajasthan	5.12.2005
135	Jalore	Jalore	Rajasthan	5.12.2005
136	Raniwara	Jalore	Rajasthan	5.12.2005
137	Budhana	Jhunjhunu	Rajasthan	5.12.2005
138	Chirawa	Jhunjhunu	Rajasthan	5.12.2005
139	Mundwa	Nagaur	Rajasthan	5.12.2005
140	Chhitorgarh	Chittorgarh	Rajasthan	'27.11.2012
141	Nimbahera	Chittorgarh	Rajasthan	'27.11.2012
142	Kuchaman	Nagaur	Rajasthan	'27.11.2012
143	Pollachi_S	Coimbatore	Tamil Nadu	'27.11.2012
144	Morappur	Dharmapuri	Tamil Nadu	'27.11.2012
145	Pappireddipatti	Dharmapuri	Tamil Nadu	'27.11.2012
146	Usilampatti	Madurai	Tamil Nadu	'27.11.2012
147	Kuttalam	Nagapattinam	Tamil Nadu	'27.11.2012
148	Rasipuram	Namakkal	Tamil Nadu	'27.11.2012
149	Attur-S	Salem	Tamil Nadu	'27.11.2012
150	Gangavalli	Salem	Tamil Nadu	'27.11.2012
151	Panamaruthupatti	Salem	Tamil Nadu	'27.11.2012
152	Talaivasal	Salem	Tamil Nadu	'27.11.2012
153	Veerapandi	Salem	Tamil Nadu	'27.11.2012
154	Chengam	Tiruvannamalai	Tamil Nadu	'27.11.2012
155	valangaiman	Tiruvarur	Tamil Nadu	'27.11.2012
156	Udangudi	Tuticorin	Tamil Nadu	'27.11.2012
157	Gudiyatham	Vellore	Tamil Nadu	'27.11.2012
158	Jolarpet	Vellore	Tamil Nadu	'27.11.2012
159	Pernampet	Vellore	Tamil Nadu	'27.11.2012
160	Tiruppathur	Vellore	Tamil Nadu	'27.11.2012
161	Municipal Corporation of Ghaziabad	Ghaziabad	Uttar Pradesh	04.04.1998
162	Haldia Industrial complex (aquifer below 120 mbgl)	East Medinipur	West Bengal	15.08.2000

Annexure-4: List of Critically Polluted Areas as defined by CPCB

State	No. of clusters	Industrial clusters / areas	CEPI
Andhra Pradesh	2	Vishakha patnam	70.82
		Patancheru-Bollaram	70.07
Chhatisgarh	1	Korba	83.00
Delhi	1	Nazafgarh drain basin	79.54
Gujarat	6	Ankaleshwar	88.50
		Vapi	88.09
		Ahmedabad	75.28
		Vatva	74.77
		Bhavnagar	70.99
		Junagarh	70.82
Haryana	2	Faridabad	77.07
		Panipat	71.91
Jharkhand	1	Dhanbad	78.63
Karnataka	2	Mangalore	73.68
		Bhadravati	72.33
Kerala	1	Cochin	75.08
Madhya Pradesh	1	Indore	71.26
Maharashtra	5	Chandrapur	83.88
		Dombivalli	78.41
		Aurangabad	77.44
		Navi Mumbai	73.77
		Tarapur	72.01
Orissa	3	Angul Talchar	82.09
		Ib valley	74.00
		Jharsuguda	73.34
Punjab	2	Ludhiana	81.66
		Mandi Gobind Garh	75.08
Rajasthan	3	Bhiwadi	82.91
		Jodhpur	75.19
		Pali	73.73
Tamil Nadu	4	Vellore	81.79
		Cuddalore	77.45
		Manali	76.32
		Coimbatore	72.38
Uttar Pradesh	6	Ghaziabad	87.37
		Singrauli	81.73
		Noida	78.90
		Kanpur	78.09
		Agra	76.48
		Varanasi-Mirzapur	73.79
West Bengal	3	Haldia	75.43
		Howrah	74.84
		Asansole	70.20

List of Abbreviations

CETP	Common Effluent Treatment Plant
CFL	Compact fluorescent lamp
CGWA	Central Ground Water Authority
CGWB	Central Ground Water Board
CPCB	Central Pollution Control Board
CTE	Consent To Establish
CTO	Consent To Operate
DG	Diesel Generator
ESP	Electro Static Precipitators
ETP	Effluent Treatment Plant
GW	Ground Water
HRD	Humar Resource Department
ICRM	Integrated Credit Rating Model
ISO	International Organization for Standardization
LED	Light Emitting Diode
MSDS	Material Safety Data Sheet
NAAQS	National Ambient Air Quality Standards
NOC	No Objection Certificate
OHS	Occupational Health and Safety
PPE	Personal Protective Equipment
PV	Photovoltaic
RE	Renewable Energy
RWH	Rain Water Harvesting
SPCB	State Pollution Control Board
STP	Sewage Treatment Plant
TERI	The Energy and Resources Institute