Energy & Environment Management in India: Need for a Competitive Approach

Abstract:

Paper industry in India, despite a lot of efforts, rules and regulations is considered as a polluting one compared to global standards. The present paper explores possibility of implementation of a competitive approach in energy as well as in environment management.

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**Introduction:**
Paper mills have been considered a major source of pollution since long. While CREP (Corporate Responsibility on Environmental Protection) emphasizes on reducing pollution levels and mark it as top priority item, EE (energy Efficiency) is for reducing energy consumption. Still, the overall performance does not seem to be very good.

Why so? We are back behind the best operating practices in the world. The availability of technology is not a bottleneck today. The cost of technology is also not very high compared to other counterparts of paper making processes. We have good rules and regulations as well as regulatory authorities.

To further analyze the same, let us have a look on the existing system.

**The Existing Approach:**
As a top regulatory system, there is Ministry of Environment (MoE), with the help of CPCB (central Pollution Control Board), controls state level bodies and continuously monitor the performance of mills, and NOC and consents are issued to the eligible mills.

Similarly, there is a body BEE (Bureau of Energy Efficiency) under Ministry of Industry, which is relatively new and many of the mandatory requirements developed by BEE are still under supervision.

On the other hand, industry often complains about the “Inspector Raj” with the functional approach of the existing system. The whole process results in poor level of control that too with a possibility of corruption. Compared to CPCB, the functioning of BEE is more industry friendly, as BEE has concentrated more on developing a well organized framework towards fulfillment of its goals.

The overall existing approach can be simulated to an examination system where the student is declared as ‘Pass’ or ‘Fail’ in stead of securing marks or grades. As a result, a major fraction of the industry cannot concentrate on targets beyond regulatory requirements. In other words, if a mill is doing better than what is mandatory, in terms of environment protection or energy efficiency, they get no other benefit than permission to operate. We should also keep it in mind that a return does not need not to be in monitory form. It can also be in form of an appreciation also. The only exceptions are few mills which work hard and harder to secure “Best in India” position.

**A Competitive Approach:**
To excel in any field, one needs to be informed about other players in the field and a comparative performance indicator. Imagine the situation when a student is declared ‘Pass’ or Fail’ without any grading. Can anyone expect students will put in the best of their efforts to studies?

In fact, BEE has tried to solve this problem. With star rating of products, BEE has given a new and efficient regulatory tool to the mills as well as consumers. Consider this- compared to 4-star refrigerator; a five star one saves electricity worth less than 500-700 a year. Yet, a 5-
star one is being sold at a premium of Rs.1500. And still the sale of a five star one is zooming. The same situation applies to all star rated electrical goods. We can even say by the approach of star rating, BEE has been able to make any energy efficient equipment as a ‘status symbol’. This clearly indicates that we are, in general, have become more cautious towards energy conservation than thought earlier.

The star rating has been able to create a competitive environment not only for industry but also for consumers. After all, this is consumer who is opting to purchase an energy efficient product, even if it comes at a premium.

In fact, this is exactly what must be done in environmental management. If we are able to create a healthy competition amongst different mills and their consumers, we can see CREP being followed in each and every mill.

Development of a competitive environment for environment protection as well as for energy conservation is not a tough job. In fact, BEE has already showed the starting path for this at least for consumer durables. However, as far as paper industry is concerned, a mill to mill comparison system could not take place properly as the benchmarking process has become too complex at present.

**Shortcomings of Existing Energy Benchmarking System:**
The existing benchmarking system lacks following two features-

1. It fails to indicate which section of the mill is energy deficient.
2. It makes it difficult to compare between the mills.

Let us have a look on the following table-1 to illustrate the same-

<table>
<thead>
<tr>
<th>Section</th>
<th>PM-1</th>
<th>PM-2</th>
<th>PM-3</th>
<th>PM-4</th>
<th>PM-5</th>
<th>PM-6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wire Part</td>
<td>30</td>
<td>39</td>
<td>22</td>
<td>72</td>
<td>20</td>
<td>17</td>
</tr>
<tr>
<td>Suction Couch</td>
<td>70</td>
<td>36</td>
<td>61</td>
<td>--</td>
<td>--</td>
<td>-</td>
</tr>
<tr>
<td>Felt Cleaning</td>
<td>32</td>
<td>63</td>
<td>99</td>
<td>164</td>
<td>100</td>
<td>39</td>
</tr>
<tr>
<td>Press Section &amp; Pickup Roll</td>
<td>35</td>
<td>60</td>
<td>65</td>
<td>163</td>
<td>--</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td>167</td>
<td>198</td>
<td>247</td>
<td>399</td>
<td>120</td>
<td>56</td>
</tr>
</tbody>
</table>

Table-1: Specific vacuum power consumption in different sections of paper machine
In the above table, PM-1,2,3 & 4 relate to one mill producing bleached grades, and PM-5 and PM-6 are other mills. The capacity, quality and basis weight of PM-5 is same to PM-4, except that PM-5 uses waste paper. PM-6 is an agro based kraft paper mill which also uses waste paper sometimes.

When we talked to an executive from PM-4, he responded that PM-5 had lesser power consumption because it used waste paper. The PM-6 executive said on his machine the specific power for vacuum remains the same for waste paper or for agro based furnish. The PM-5 executive said that PM-6 was making low grade paper selling at almost half the price than we did, so their power consumption is low. Don’t compare us with them.

Obviously, one cannot compare these machines on the basis of available data without proper benchmarking leave apart the mills. Furthermore, with the existing system and software made available by BEE, a mill can get its own rating in energy efficiency scale, but it does not know its status compared to other mills.

**Mills Performance Monitoring:**

Quite obviously, we need to monitor data on a fool-proof basis for the same. However, in many cases, where we do not have a proper monitoring infrastructure, we should be ready to accept the mill data, and for the same, data should be collected by the mills on a regular basis. The major reasons why mill often remain reluctant to furnishing of the data are as under-

1. Too much detailing required- In most of the forms to be submitted regularly, the same data is asked again and again. For a mill running for say 10 years, asking the name and address of all directors, list of installed equipments, process flow sheet every three or six months and that too only on prescribed format (not in electronic form) only increases clerical work.
2. Overlook on mill data: There are many instances that even after submitting some data regularly on monthly basis, a mill gets a notice to furnish the same data again say within 15 days.
3. Denial of mill data: If a mill is submitting data on monthly basis say for water consumption, water CESS is levied on much higher amount saying that the mill data was wrong and the mill’s meter was not working properly. Such are the easiest blames one can put on any mill, without any supporting data.

Such and other similar problems need to be addressed in a proper manner so that the gap between the authorities and mills can be bridged.
Finally, installation of on-line monitoring system should be practiced. Today, these systems have become very cheap and hence one should not find expenses on such systems as barriers. For example, we may consider installation of modem enabled energy meters for energy metering of effluent treatment plant etc.

**Preparation of Merit List:**
In fact, this requires authorities to work much harder in the initial phase. Comparing different mills in order to generate a merit list is not an easy task. There may be criticism, objections, and allegations of partiality, and the authorities will need to be transparent in their operation. To begin with, separate committees may be formed in which senior government officials as well as elected qualified representative from mills. These committees will develop procedures for grading mills depending upon their process, compliance level, past performance etc.

The merit list preparation task will include the followings-

1. Generation of mill wise merit list
2. Generation of section wise merit list

While the first list indicates the overall performance of a mill, the second and third list will help the mills in comparing with other mills. For the same, a scoring system should be developed which consists of various parameters. Obviously, a mill having low quantity of effluent gets better marks, and similar approach is followed for cleaner effluent, less solid waste generation; less suspended solids, NOx etc. in flue gases.

A typical list indicating mills overall performance in terms of environmental management will look as under-

<table>
<thead>
<tr>
<th>Sl.</th>
<th>Name of the Mill</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Mill A</td>
<td>96</td>
</tr>
<tr>
<td>2.</td>
<td>Mill B</td>
<td>94</td>
</tr>
<tr>
<td>3.</td>
<td>Mill C</td>
<td>94</td>
</tr>
<tr>
<td>4.</td>
<td>Mill D</td>
<td>91</td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Mill Z</td>
<td>26</td>
</tr>
</tbody>
</table>

If required, separate such lists can be made for air pollution, water pollution etc. For energy related activities, specific energy consumption with reference to different variables e.g. type of raw material, quality of product, processes used etc. can be used to develop a scoring system and finally the merit list.
The second and more important step will be to make the list public. The same may be done either by publishing the data in newspapers or uploading on internet. This will result in a transparent system, by which mills at lower levels in the list will be forced not only by the authorities but also socially.

Furthermore, section wise lists for example in case of energy efficiency, SPC for paper machine drives, SPC for paper machine vacuum, SPC for paper machine drives, SPC for refining, SPC for pulping etc. can be made. These lists need not to be made public, but distributed only to mills to identify themselves their status compared to other mills. To begin with, the mills may be required to file their figures on mandatory basis. Later on verification may be required to be done by some energy auditor from within or outside the mill.

In case of environmental management, such list include specific water consumption, quality of effluent generated, colour of the effluent generated, specific fuel consumed or CO₂ produced by the mill etc.

Finally, we may declare say top 10% as good performer, bottom 10% as poor performer and remaining as average performer.

**The Good, Average and Poor Performers:**
Any group can be divided into three sub groups- the good, the average and the poor performers. If we look the mills closely, we may find most good performers are from the mills supplying their product as a brand. They also get a brand value enhancement by keeping stricter control upon themselves in terms of energy efficiency as well as environmental management. The poor performers are generally the mills which have a very low capital involved and do not want to spend much money, energy and time on such improvements.

But, a major section, the average performer mainly comprises of the mills which have their functional system in place, availability of funds to invest at least a little for improvements, but seriously lacking the will power to improve on energy and environment front.

**Increasing Competition amongst Average Performers:**
The most difficult segment in any group is the average performer. The good performers work hard to get a better and better ranking. The poor are forced to work hard to secure a relatively safer position. However, a majority remains in average performers, who are satisfied with their existing position. While in consumer durables market also, to some extent, forces industry to develop and produce energy efficient products; paper industry has no such booster. That is why; a competitive approach becomes a must for paper industry.
In fact, due to this fact, the paper industry will require 3-5 years in developing a good framework for competitive environment. Imagine if a mill is operating at 225th position, and jumps to 220th in the next year. This indicates clearly that the mill is doing at least a little to improve upon compared to others. But, if this mill’s ranking falls to 250th position, it will be an alarming point for the mill to save itself from further fall in the ranking.

This, in fact, will make the functioning of regulatory control boards much easier in the long run. The regulatory boards like state PCB or BEE may concentrate more on the mills having poor ranking or the mills whose ranking has been fallen during past two-three years. On the other hand, the mills having better rank in list may use it as a marketing USP in addition to be in good books of authorities.

**Increasing Competition amongst Poor Performers:**

What makes a management stay at poor performer platform? In fact, poor management, lower level of will power to improve upon coupled with less investments and efforts are the key points. To address the problem, separate efforts should be made at national level to uplift them. We may begin with organizing one-two day meetings/seminars exclusively for directors or top management of such units. The objective will be to describe them the gains they can get by adopting efficient practices. Some of them may wish to depute their technical personnel or managers, but here the target should be to create willingness towards energy and environment protection. If they are really willing to do so, technology or know-how is not a problem.

In fact, personal meetings and get together have helped the author to follow efficient management approaches in 3-4 mills. I’d like to cite a case, where the mill was having a full functioning ETP, but, aerators were switched off, dosing pumps were not working and an effluent bypass line was in operation. In such a situation, a director of such a mill was asked- “How much, as a family you contribute to charity, religious donations, helping to poor etc.?” The director started thinking of figures. Before, he was able to answer, another question was put up, “How much it would cost if you run the aerators, dosing pumps and finally the complete ETP?” Needless to say, he ordered immediately to the managers to run the ETP immediately and as a regular practice, and it is functioning well even after a couple of years. In fact, you need more will power and a little money to be eco friendly.
There may be exceptions, but by such efforts many of the poor performers would be tempted to join the race for a better environment. For the rest, authorities are already equipped with rules and regulations as well as option to take necessary actions against these mills.

**Conclusion:**

A simple sentence justifying the need for a competitive environment can be stated as- “It is all human to be happy with ones progress but to be happier when the progress is better than the neighbour”. The key fundamental for a rapid growth for any target is regular performance monitoring and competition. If we apply the same in energy and environment management, we can ensure a better and efficient environment.

**About the Author**

Born in 1968, **D K Singhal** is B.E., M.E. (Pulp & Paper, 1993) from Deptt. of Paper Technology, University of Roorkee (now IIT, Roorkee). He was certified as Certified Energy Auditor in 2004 by Bureau of Energy Efficiency. In addition to practical experience in papermaking, project planning, research and development, consultancy, automation etc.; energy conservation and cost reduction have been his main areas of concern.

With nearly 6 dozen publications, he has emphasized on development of low cost technologies and management practices for quality and profitability improvement. With publications on energymanagertraining.com and paperonweb.com, he has been constantly contributing to IPPTA. He is also serving IPPTA as a member of Editorial Board. With Chandpur Enterprises Ltd., development of quality MG poster paper on carbon steel fabricated yankee cylinder, design, engineering, erection and commissioning of surface winding on supercalender both for the first time in India, are some of his achievements.

An initiative by D K Singhal, a cyber campaign initiated against unjustified targeting of paper industry for being responsible for deforestation, by a mobile service provider, in their “Sirjee” advertisement campaign, after which this advertisement was taken off air.

He has also moderated a Yahoo group, “**PaperTechnology**” with more than 300 members from India and abroad to discuss problems related to pulp & paper making.

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