CHAPTER - VI
EVALUATION OF WORKING CAPITAL
MANAGEMENT THROUGH OPERATING CYCLE ANALYSIS

6.1 INTRODUCTION

There is a close relationship between the growing use of economic analysis in business and the expansion of quantitative and mathematical approaches. Working capital is one of the most important factors in economic development.

In addition to economic analysis the firm’s working capital position, its financial structure, and its management may be important considerations in determining its prospects. Working capital is an important consideration because the firm must have enough funds to meet its current obligations such as the purchase of materials and supplies, additions to plant and equipment, and debt repayment. This will be the focus of the subsequent analysis of the firm’s working position. The importance of working capital in any industrial concern merits capital emphasis.

Working capital management is as significant facet of financial management. Its importance stems from two reasons:

1. Investment in current assets represent a substantial portion of total investment.
2. Investment in current assets and the level of current liabilities have to be geared quickly to changes in sales. To be sure, fixed asset investment and long-term financing are also responsive to variation in sales. However, this relationship is not as close and direct as it is in the case of working capital components.
There are two concepts of working capital: gross working capital and net working capital. Gross working capital is the total of all current assets. Net working capital is the difference between current assets and current liabilities. On the structural side of working capital management the problem lies determining the total quantum of investment for working capital purpose.

The need for working capital to run the day-to-day business activities cannot be overemphasized. We cannot find a business firm which does not require any amount of working capital. Firms differ in their requirements of working capital.

Working capital management is particularly more important to the small firm. A small firm may reduce its fixed assets requirements by renting or leasing plant and equipment, but there is no way before it to avoid an investment in current assets. Working capital is a tool to control operations for manufacturing activities.

6.2 OPERATING CYCLE

Cash plays a vital role in lubricating business operations. It is needed to buy material inputs and meet other expenses in the course of business operations. The outflow of cash that occurs in the course of business operations is recovered when sale-proceeds are realized. The cash which is thus recovered is used again on raw-materials expenses etc. and thereby, a cycle is created. In this cash becomes raw material, work-in-progress finished goods in storage and sundry debtors before it resumes the form of cash. The flow from cash to suppliers, inventories to receivables and back into cash is called the operating cycle. The four distinct components of the operating cycle are: 1. Raw material cycle, 2. Conversion cycle, 3. Storage cycle and 4. Collection cycle.

The duration of the components of the operating cycle is measured in terms of number of days. When average stock of raw materials is
divided of gross raw material cycle obtained. Subtraction of duration of trade-credit from gross raw material credit is equal to average balance of sundry creditors divided average amount of credit purchase per day. Conversion cycle is the quotient of average stock of work-in-progress divided by average daily consumption of work-in-process storage cycle is obtained when average stock of finished goods is divided by average cost of goods sold per day. Collection cycle is equal to average balance of sundry debtors divided by average value of credit sales per clay.

6.3 SOME METHODOLOGICAL ISSUES

Normally a production centre buys raw materials and sells finished goods. In the present case, institutions under study buy not only raw materials but also finished goods for retail sales. Similarly these institutions sell not only finished goods but also work-in-progress. Therefore computation of conversion procurement of inputs of work-in-progress and finished goods and for sale of work-in-progress. Duration of trade credit has been subtracted from gross raw material cycle only, even though a part of the credit accommodation was given by suppliers of work-in-progress and finished goods. Sundry creditors could not be segregated as creditors of raw materials, work-in-progress and finished goods duration of trade credit could not be separately calculated for conversion and storage cycle. To that conversion suffers from a measure of under statement and duration of conversion and storage cycle from over statement. Particulars of credit purchase and credit sales are not separately available and therefore, data on total purchase and total sales have been used in the place of credit purchase and credit sales, it is true that credit purchase and credit sales constitute about 90 percent of the total purchase and total sales. Yet it must be admitted that actual duration of trade credit and collection cycle would be slightly longer than what has
been calculated in the text since, total purchase and total sales have been used in the exercise.

6.4 WORKING CAPITAL ANALYSIS OF HANDMADE PAPER UNIT, PIDAGAM

Table 6.1 presents the operating cycle days recorded by the handmade paper unit, Pidagam, during the study period.

6.4.1 Net Raw Material Cycle

The net raw material cycle days of the unit ranged from 28 days to 610 days with an average of 228 days. Net raw material cycle witnessed very high fluctuations. The root causes for such sharp variations are attributed to stocking of raw material and stores in excess of the current requirements. The basic raw materials for the handmade paper unit are hosiery cuttings, tailor cuttings and chemicals like titanium dioxide, rosin soap, bleaching powder and sodium hydroxide. The Pidagam handmade paper unit is located in Villupuram District which is far away at 325 kms from the raw material source at Tirupur. So the unit has stocked the hosiery cuttings in excess due to the distance factor from the hosiery city, Tirupur. This has resulted in long gross raw material cycles in 1991-92, 1994-95 to 1996-97 and 1998-99. In some years the unit has recorded shorter duration of gross raw material cycles like 40 days in 2000-01 and 121 days in 1993-94. During these two years, the value of the stocks maintained by the unit was been lower and ensured higher rate of consumption. So the unit has to reduce the stocks and increase the velocity of raw material consumption. Similar trends could also be observed in the credit cycle days. It ranged from 12 days to 500 days in the study period with fluctuations. During 1995-96, the trade credit cycle days exceeded 1 1/2 years affecting the goodwill of the unit with the suppliers. In 1993-94 and 2000-01 the trade credit cycle days were short at 29 days and 12 days respectively.
Table No – 6.1
Handmade Paper Units, Pidagam – Operating Cycle

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Year</th>
<th>R.M Cycle</th>
<th>Conversion Cycle</th>
<th>Storage Cycle</th>
<th>Collection Cycle</th>
<th>Total Operating cycle</th>
<th>W.C Turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1991-92</td>
<td>191</td>
<td>112</td>
<td>122</td>
<td>22</td>
<td>447</td>
<td>1.22</td>
</tr>
<tr>
<td>2.</td>
<td>1992-93</td>
<td>45</td>
<td>83</td>
<td>189</td>
<td>34</td>
<td>351</td>
<td>0.96</td>
</tr>
<tr>
<td>3.</td>
<td>1993-94</td>
<td>92</td>
<td>43</td>
<td>331</td>
<td>39</td>
<td>505</td>
<td>1.38</td>
</tr>
<tr>
<td>4.</td>
<td>1994-95</td>
<td>466</td>
<td>130</td>
<td>215</td>
<td>63</td>
<td>874</td>
<td>2.39</td>
</tr>
<tr>
<td>5.</td>
<td>1995-96</td>
<td>185</td>
<td>29</td>
<td>79</td>
<td>70</td>
<td>363</td>
<td>0.99</td>
</tr>
<tr>
<td>6.</td>
<td>1996-97</td>
<td>405</td>
<td>73</td>
<td>53</td>
<td>100</td>
<td>631</td>
<td>1.73</td>
</tr>
<tr>
<td>7.</td>
<td>1997-98</td>
<td>156</td>
<td>44</td>
<td>33</td>
<td>73</td>
<td>306</td>
<td>0.84</td>
</tr>
<tr>
<td>8.</td>
<td>1998-99</td>
<td>610</td>
<td>13</td>
<td>241</td>
<td>78</td>
<td>942</td>
<td>2.58</td>
</tr>
<tr>
<td>9.</td>
<td>1999-2000</td>
<td>103</td>
<td>6</td>
<td>314</td>
<td>102</td>
<td>525</td>
<td>2.88</td>
</tr>
<tr>
<td>10.</td>
<td>2000-2001</td>
<td>28</td>
<td>7</td>
<td>456</td>
<td>105</td>
<td>596</td>
<td>1.74</td>
</tr>
<tr>
<td></td>
<td></td>
<td>228</td>
<td>54</td>
<td>203</td>
<td>69</td>
<td>554</td>
<td>1.67</td>
</tr>
</tbody>
</table>

Source: Computed from the annual audited reports of Pidagam, H.M.P unit by the researcher.
Fig - 21
Handmade paper Units, Pidagam - Operating Cycle

Cycle days

Year

Collection Cycle
Storage Cycle
Conversion Cycle
R.M Cycle
Coupled with the fluctuating trends in gross raw material cycle and trade credit cycle days, the net raw material cycle days fluctuated from 28 days to 610 days. This clearly indicates that the unit has adopted neither any of the inventory management techniques nor bench marks to maintain the inventories. Uncontrolled inventories extended the gross raw material cycle and also the net raw material cycle. The unit has to institute appropriate inventory control techniques to improve the performance in net raw material cycle days.

6.4.2 Conversion cycle

The handmade paper unit at Pidagam has recorded conversion cycle (Table 6.1) ranging between 6 days and 130 days with high fluctuations. The average duration of conversion cycle days was at 94 days. Normally a batch of handmade preparation work will consume only 6 days. The unit consumes only 6 days. The unit has recorded conversion cycles equal to the normal tune only in 1999-2000 and 2000-01. In other years the cycle days exceeded the norm of 6 days and in 1994-95 it was at its peak affecting the business operations. Long duration of conversion cycles indicate the lack of planning of production operations. A sound production plan will ensure effective utilization of plant and fixed assets and labour and reduce wastages.

The handmade paper unit at Pidagam has been suffering due to poor planning. It is necessary that the staff managing the affairs of the handmade paper unit should be trained in production planning systems applicable to handmade paper units. The unit has recovered from long conversion cycles from 1998-99 onwards and shown some improvement recording conversion cycles of 13, 6 and 7 days respectively.
6.4.3 Storage cycle

As per Table 6.1, the handmade paper unit at Pidagam has recorded conversion cycle days ranging from 33 days to 456 days with an average of 203 days. Storage cycle is influenced by the marketing efficiency of the unit. Changes in the market demand, cost factor and the competition strategy will affect the storage cycle and business operations. Handmade paper units undertake paper production in batches and initiation of each batch should be based on the market orders. But the unit has recorded an average of 6 months and above. The Khadi and Village Industries Board, Government of Tamil Nadu, places orders for the production of handmade paper goods and they do not lift the goods as soon as the production of the batch is completed. After a long delay, the goods are lifted from the unit after identifying buyers for the produce. Either KVIB, Tamil Nadu, or the handmade paper unit in-charge should identify markets and it should send intimation to the all wholesalers and retailers about the availability of stocks and such market information and networking with paper dealers will do more for the success of the unit. In the absence of marketing network and dealer contacts, the unit will suffer, affecting the business prospects.

6.4.4 Collection cycle

The handmade paper unit at Pidagam has recorded collection cycles ranging from 22 days to 105 days with an average of 9 days. The collection cycle duration will indicate the dues collection velocity for the sales made on credit basis. Comparing the raw material cycles and storage cycles, the collection cycles were found to be comfortable. On an average, the unit has extended credit for about 2 months for the sales. The collection cycle days were found to be shorter during 1991-92 to 1995-96 and longer in 1996-97, 1999-2000 and 2000-01. The existing dues collection practices may be continued.
6.4.5 Total operating cycle

The total operating cycle days of the handmade paper unit at Pidagam ranged between 306 days and 942 days with an average of 558 days. Except in 1997-98 and 1992-93 the total operating cycle days have exceeded one year indicating the slow nature of the production and sales operations. The major contributing factors for such long operating cycles were net raw material cycles and storage cycles. The unit has to ensure sound inventory management systems and earmark vibrant marketing strategies for the products. The unit incharge must not be solely dependent on KVIB for sales and should contact the handmade paper dealers and wholesalers for effecting independent marketing. The turnover of working capital for this unit was found to range from 306 to 942. The unit has to work for improving the working capital turnover ratio above 1.00 to ensure profitable business operations.

6.5 WORKING CAPITAL ANALYSIS OF HANDMADE PAPER UNIT, PONNAVARAYANKOTTAI

Table 6.2 presents the component cycles of the handmade paper unit at Ponnavarayankotti for a period of 10 years.

6.5.1 Net raw material cycle

The net raw material cycle of the unit ranged from 16 days to 600 days, with an average of 166 days. The unit witnessed very high fluctuations in the cycle days due to lack of planning in respect of raw material requirement and inventory control. As stated for the handmade paper unit at Pidagam, this handmade paper unit also stocked raw materials in excess of the current requirements. In 1994-95, 1996-97 and in 2000-01, the gross raw material cycles were responsible for long net raw material cycles. In 1991-92, 1994-95, 1996-97 and 1997-98 the trade credit durations exceeded 300 days, reaching a maximum of 1000 days in 1996-97. Long credit cycles will affect the credit worthiness among the
### Table 6.2
**Handmade Paper Units, Ponnavarayankottai – Operating Cycle**

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Year</th>
<th>R.M Cycle</th>
<th>Conversion Cycle</th>
<th>Storage Cycle</th>
<th>Collection Cycle</th>
<th>Total Operating Cycle</th>
<th>W.C Turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1991-92</td>
<td>40</td>
<td>45</td>
<td>580</td>
<td>110</td>
<td>775</td>
<td>0.47</td>
</tr>
<tr>
<td>2.</td>
<td>1992-93</td>
<td>16</td>
<td>14</td>
<td>138</td>
<td>20</td>
<td>188</td>
<td>1.94</td>
</tr>
<tr>
<td>3.</td>
<td>1993-94</td>
<td>160</td>
<td>24</td>
<td>720</td>
<td>300</td>
<td>1204</td>
<td>0.30</td>
</tr>
<tr>
<td>4.</td>
<td>1994-95</td>
<td>50</td>
<td>27</td>
<td>312</td>
<td>20</td>
<td>409</td>
<td>0.89</td>
</tr>
<tr>
<td>5.</td>
<td>1995-96</td>
<td>165</td>
<td>9</td>
<td>85</td>
<td>27</td>
<td>276</td>
<td>1.32</td>
</tr>
<tr>
<td>6.</td>
<td>1996-97</td>
<td>250</td>
<td>30</td>
<td>140</td>
<td>25</td>
<td>445</td>
<td>0.82</td>
</tr>
<tr>
<td>7.</td>
<td>1997-98</td>
<td>50</td>
<td>35</td>
<td>250</td>
<td>15</td>
<td>350</td>
<td>1.04</td>
</tr>
<tr>
<td>8.</td>
<td>1998-99</td>
<td>18</td>
<td>40</td>
<td>660</td>
<td>20</td>
<td>748</td>
<td>0.48</td>
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<tr>
<td>9.</td>
<td>1999-2000</td>
<td>325</td>
<td>6</td>
<td>384</td>
<td>33</td>
<td>748</td>
<td>0.48</td>
</tr>
<tr>
<td>10.</td>
<td>2000-2001</td>
<td>600</td>
<td>6</td>
<td>350</td>
<td>47</td>
<td>1003</td>
<td>0.36</td>
</tr>
<tr>
<td></td>
<td><strong>Average</strong></td>
<td><strong>166</strong></td>
<td><strong>24</strong></td>
<td><strong>362</strong></td>
<td><strong>62</strong></td>
<td><strong>614</strong></td>
<td><strong>0.81</strong></td>
</tr>
</tbody>
</table>

Source: Computed from the annual audited reports of Ponnavarayankottai, H.M.P unit by the researcher.
Fig - 22
Handmade Paper unit, Ponnavarayankottai - Operating cycle
suppliers and it should be controlled. The unit has been successful in managing raw material cycles during 1992-93, 1994-95, 1997-98 and 1998-99. Primary sources reveal that the unit has met with higher consumption of raw materials coupled with less stocks resulting in comfortable low values of net raw material cycle days.

6.5.2 *Conversion cycle*

As per Table 6.2, the conversion cycle of the handmade paper unit at Ponnavarayankottai ranged between 6 and 45 days with an average of 24 days. Shorter durations were recorded during 1995-96, 1999-2001. Longer duration of above 35 days and 45 days were recorded in 1997-98 and 1991-92. Whenever the manufacturing activities were brisk, i.e., when the cost of finished goods manufactured reached its peak of Rs.2.65 lakhs and Rs.2.95 lakhs, it could post shorter conversion cycles equal to the norm of 6 days per lot. Longer durations have witnessed very low value of the finished goods manufactured. For example, in 1997-98 and in 1991-92, the cost of finished goods made was at its lowest of Rs.0.70 lakh and Rs.0.73 lakh resulting in long durations of conversion cycle. The conversion cycle days were much influenced by utilization of plant and machinery. The unit has to ensure the minimum level of manufacturing activity through procuring adequate orders for production to keep the plant and labour fully utilized.

6.5.3 *Storage Cycle*

As per Table 6.2, the storage cycle of the unit ranged between 85 days and 726 days with an average of 312 days. The unit had posted very long duration of storage cycles coupled with very wide fluctuations. This indicates the inadequate marketing management adopted by the unit. In 1993-94 the manufactured goods were retained in the godown for about 2 years (726 days). Long storage cycles affect the availability of cash
resource for business operations, licence measures to contain the storage cycle durations have to be ensured on the following lines.

(a) Identifying the bottlenecks in marketing

(b) Enhancing the marketing base with the nearly handmade paper dealers in Madurai, Tiruchy and Tanjore.

(c) Improving the quality of the output through enacting adequate quality control techniques in the production process.

(d) Establishing marketing linkages with the actual users of handmade paper and boards and assessing their preferences and tastes.

(e) Shifting the focus of the unit from production driven to market driven strategies.

6.5.4 Collection cycle

The handmade paper unit at Ponnvarayanlcoottai recorded collection cycle days ranging from 15 days to 300 days with an average of 62 days. The unit has recorded comfortable collection cycles except in two years, 1991-92 and 1993-94. In the remaining years the collection cycles were found to be within two months. The unit has to control very high variations in the collection cycle and in this direction measures are to be ensured to stabilize the sales performance. Varying levels of sales will lead to reduction in the customer base and lost customers may not be in a position to clear the sales debts, which will result in long collection cycles. A marketing plan has to be chalked out by the unit in-charge to improve the sales performance. In this direction adequate training may be provided to the unit managers by the Tamil Nadu KVIB. Chennai.

6.5.5 Total operating cycle

The total operating cycle days of the unit witnessed sharp fluctuations from 188 days in 1992-1993 to 1204 days in 1993-1994 with an average of 312 days per annum. Storage cycles were exclusively responsible for such long total operating cycle and variations. The unit
has to develop appropriate marketing practices to improve sales and thereby reduce the storage cycle days correspondingly. The turn over of working capital ratio ranges from 0.30 to 1.94. Remedial measures to enlarge the ratio will reduce the storage cycles and improve the production and sales to a viable level. It is worth mentioning that the unit has been working with low capacity utilization for want of adequate markets the handmade paper products. Hence strengthening the market alone will help this unit to augment production.

6.6 WORKING CAPITAL ANALYSIS OF HANDMADE PAPER UNIX, SENBAGAPUDUR

Table 6.3 presents the component cycles of the handmade paper unit at Senbegapudur for a period often years from 1991-92 to 2000-01.

6.6.1 Raw material cycle

The unit recorded gross raw material cycles ranging from 31 days to 217 days with moderate fluctuations. The unit experienced long gross raw material cycles when the volume of the production decreased and higher stocks of raw materials rose. The unit is near to the raw material source namely, Tirupur City, and excessive stocks need not be maintained by the unit. The lowest duration of gross raw material cycle was witnessed in 1994-95 when it recorded the lowest stocks of raw materials and brisk manufacturing activities. Hence, to reduce the gross raw material cycle the unit has to enlarge the value of manufacturing.

The unit recorded trade credit cycle days ranging from 24 days to 115 days. The unit has to reduce sundry creditors that increased in 1999-2000 and 2000-01.

The net raw material cycle days ranged from 7 days to 87 days with an average of 53 days. The unit was good at managing, net raw material cycle days among the units under review. The unit has the capability to produce multiple varieties of handmade paper which result
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Table No – 6.3
Handmade Paper Units, Senbahapudur– Operating Cycle

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Year</th>
<th>R.M Cycle</th>
<th>Conversion Cycle</th>
<th>Storage Cycle</th>
<th>Collection Cycle</th>
<th>Total Operating Cycle</th>
<th>W.C Turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1991-92</td>
<td>48</td>
<td>40</td>
<td>56</td>
<td>35</td>
<td>179</td>
<td>2.04</td>
</tr>
<tr>
<td>2.</td>
<td>1992-93</td>
<td>72</td>
<td>86</td>
<td>224</td>
<td>77</td>
<td>459</td>
<td>0.79</td>
</tr>
<tr>
<td>3.</td>
<td>1993-94</td>
<td>54</td>
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<td>40</td>
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<td>178</td>
<td>2.05</td>
</tr>
<tr>
<td>4.</td>
<td>1994-95</td>
<td>7</td>
<td>44</td>
<td>32</td>
<td>37</td>
<td>120</td>
<td>3.04</td>
</tr>
<tr>
<td>5.</td>
<td>1995-96</td>
<td>35</td>
<td>29</td>
<td>115</td>
<td>45</td>
<td>224</td>
<td>1.63</td>
</tr>
<tr>
<td>6.</td>
<td>1996-97</td>
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<td>21</td>
<td>43</td>
<td>56</td>
<td>162</td>
<td>2.25</td>
</tr>
<tr>
<td>7.</td>
<td>1997-98</td>
<td>40</td>
<td>19</td>
<td>21</td>
<td>58</td>
<td>138</td>
<td>2.64</td>
</tr>
<tr>
<td>8.</td>
<td>1998-99</td>
<td>66</td>
<td>17</td>
<td>20</td>
<td>53</td>
<td>156</td>
<td>2.33</td>
</tr>
<tr>
<td>9.</td>
<td>1999-2000</td>
<td>87</td>
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<td>40</td>
<td>54</td>
<td>199</td>
<td>1.83</td>
</tr>
<tr>
<td>10.</td>
<td>2000-2001</td>
<td>79</td>
<td>25</td>
<td>40</td>
<td>50</td>
<td>194</td>
<td>1.88</td>
</tr>
</tbody>
</table>

Average | 53 | 32 | 63 | 53 | 210 | 2.05 |

Source: Computed from the annual audited reports of Senbahapudur, H.M.P unit by the researcher
in sharp net raw material cycle clays. The unit in-charge is quite
innovative and, with his long experience in the paper manufacturing
technology has helped in posting such sharp cycle days and high volume
of business.

6.6.2 Conversion cycle

As per the Table 6.3, the unit has recorded conversion cycles
ranging from 17 days to 86 days with an average of 32 days.

From the trend it could be observed that from 1995-96 onwards the
conversion cycles have been very sharp and short indicating the
managerial capability to improve its production efficiency. The unit has
introduced certain degree of production planning, scheduling and control
techniques in the production process.

Despite the fact that the unit has conventional technologies for
making paper through auto vats and dipping vats it could achieve shorter
duration of conversion cycles due to its efficient handling of the
production affairs and innovative varieties that have been produced by the
unit. Mention has to be made about its stocks which were always as low
as possible, which speaks about its inventory management practices.
Continuation of existing practices of production management and
inventory control techniques will further strengthen the management of
working capital in terms of conversion cycle.

6.6.3 Storage cycle

The unit commendable performance in terms of storage cycle also.
The storage cycle of the handmade paper unit at Sembagapudur ranged
between 20 days and 224 days with an average of 63 days. Only in
1992-93, the unit recorded very long storage cycle of 224 days due to low
volume of goods sold. During this year, the unit met with internal labour
problem affecting the business for about 6 months. In the remaining years
during 1991-92, 1993-95, and from 1996-97 to 2000-01 the storage cycle
days were shorter and it has managed successfully. The unit produced multiple varieties of handmade paper like craft paper, bond sheets, envelopes, white sheet and other artistic paper which were in great demand among the special users of the handmade paper unit. The unit has also evolved right mix of the output that resulted in low inventories. Thus the unit’s management has identified the right markets for their products and their products were value added products. The unit not only sell their products to Tamil Nadu KVIB, but also to the paper dealers in Erode. Frequent market contacts and networking with the dealers has helped the unit to manage the storage cycle successfully, with an average of 3 days. Addition of cylinder mould technology will help the unit to expand its market and generate profits. However this proposal has to be studied carefully after assessing the water availability as the unit has met with water shortage during 1999-2000 onwards.

6.6.4 Collection cycle

As per Table 6.3 the collection cycle of the handmade paper unit at Senbagapudur ranged from 35 days to 77 days with an average of 53 days in the period of ten years. Because of its efficient marketing and frequent contacts made with the dealers it has posted comfortable collection cycles well below two months. This has confirmed that better quality products and identification of right markets will reduce the collection cycle as the goods sell at a premium. The existing sales management practices may be continued to keep the cycle days well below sixty days.

6.6.5 Total operating cycle

Except in 1992-93, the total operating cycle days in the remaining years were well below 200 days. This is the only unit among the study units with operating cycles for 9 years with an average of 210 days. The unit has successfully managed the component cycles despite the handicap of having auto vats and dipping vats.
Innovative management practices, right mix of products, inventory control and production planning, quality products and right market information and linkages have helped the unit to record shorter total operating cycle days. This has resulted in working capital turnover ratios ranging from 0.79 to 3.04, with an average of 2.05.

6.7 WORKING CAPITAL ANALYSIS OF HANDMADE PAPER UNIT, THIRUCHENGODU

Table 6.4 presents the component cycles, total operating cycles and the turnover of working capital ratios recorded by the handmade paper unit at Thiruchengodu for a period of 10 years.

6.7.1 Net raw material cycle

The unit recorded gross raw material cycles ranging from 61 days to 1117 days. During the initial periods from 1991-92 to 1993-94, the duration of gross raw material cycle days were very long with 825 days to 117 days. The reason was that the unit had shown excessive stocks of raw material and purchases were found to be very low. This was attributed to the lower level of technology adopted by the unit in the couching process. In 1994-95, the unit installed cylinder mould technology for paper and board making which has led to improved velocity in the production process reducing the gross raw material cycles drastically to 88 days in 1994-95 from 856 days in 1993-94. This unit is an example to indicate that the level of technology adopted in handmade paper production process influences the gross raw material cycle. Only in 2000-01 the gross raw material cycle exceeded 100 days due to reduction in the consumption rate of raw materials.
<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Year</th>
<th>R.M Cycle</th>
<th>Conversion Cycle</th>
<th>247/Storage 184 Cycle</th>
<th>Collection Cycle</th>
<th>Total Operating cycle</th>
<th>W.C Turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1991-92</td>
<td>525</td>
<td>26</td>
<td>247</td>
<td>126</td>
<td>924</td>
<td>0.39</td>
</tr>
<tr>
<td>2</td>
<td>1992-93</td>
<td>783</td>
<td>47</td>
<td>184</td>
<td>120</td>
<td>1134</td>
<td>0.32</td>
</tr>
<tr>
<td>3</td>
<td>1993-94</td>
<td>726</td>
<td>21</td>
<td>107</td>
<td>90</td>
<td>944</td>
<td>0.39</td>
</tr>
<tr>
<td>4</td>
<td>1994-95</td>
<td>28</td>
<td>26</td>
<td>119</td>
<td>109</td>
<td>282</td>
<td>1.29</td>
</tr>
<tr>
<td>5</td>
<td>1995-96</td>
<td>17</td>
<td>21</td>
<td>69</td>
<td>70</td>
<td>177</td>
<td>2.06</td>
</tr>
<tr>
<td>6</td>
<td>1996-97</td>
<td>2</td>
<td>21</td>
<td>46</td>
<td>86</td>
<td>155</td>
<td>2.35</td>
</tr>
<tr>
<td>7</td>
<td>1997-98</td>
<td>2</td>
<td>34</td>
<td>32</td>
<td>109</td>
<td>177</td>
<td>2.06</td>
</tr>
<tr>
<td>8</td>
<td>1998-99</td>
<td>3</td>
<td>12</td>
<td>148</td>
<td>96</td>
<td>256</td>
<td>1.41</td>
</tr>
<tr>
<td>9</td>
<td>1999-2000</td>
<td>1</td>
<td>11</td>
<td>87</td>
<td>112</td>
<td>211</td>
<td>1.72</td>
</tr>
<tr>
<td>10</td>
<td>2000-2001</td>
<td>55</td>
<td>19</td>
<td>94</td>
<td>113</td>
<td>281</td>
<td>1.30</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>214</strong></td>
<td><strong>24</strong></td>
<td><strong>113</strong></td>
<td><strong>103</strong></td>
<td><strong>454</strong></td>
<td><strong>1.33</strong></td>
</tr>
</tbody>
</table>

Source: Computed from the annual audited reports of Thrichengodu, H.M.P unit by the researcher.
Fig - 24
Handmade Paper Unit, Tiruchengodu - Operating Cycle

Year
Cycle days
0 200 400 600 800 1000 1200

- Collection Cycle
- Storage Cycle
- Conversion Cycle
- R.M Cycle
The credit cycles followed the same trend as gross raw material cycles and from 1994-95 onwards, it has shown a declining trend. From 1996-97 the credit cycle days were more stable indicating the unit’s efficiency in paying the sundry creditors in time.

Thus, the net raw material cycle days ranged from one day to 783 days with an average of 214 days. When the initial period of 3 years are excluded from the sample, the duration of net raw material cycle was quite satisfactory. The existing production technology and inventory practices have to be continued for sustaining the present trend.

6.7.2 Conversion cycle

The unit has recorded conversion cycle days ranging from 11 days to 47, days with an average of 24 days per annum. Due to adoption of cylinder mould technology, the unit could record a stable level of conversion cycles. The conversion cycle days were found to be sharp and crisp and the unit must maintain the existing trends in future also.

6.7.3 Storage cycle

The unit recorded storage cycle days ranging from 32 days to 247 days with an average of 113 days. During 1991-95 for four years, the storage cycles were long from 107 days to 247 days. After the production process, it could record lower durations. Only in 1998-99 it has shown a long duration of 148 days due to excess stocks retained by the unit.

The reduction in storage cycle was due to the improvement in the quality of the output out of the cylinder mould technology introduced by the unit.

Autovats result in variations in the grams per square metre of the paper and board, affecting the marketability of the output. The cylinder mould technology ensures uniformity in the grams per square metre of the product and better durability characteristics like longer life and better appeal among the customers. This improvement in the quality of the
paper improved sales and reduced the storage cycles of the unit after 1995-96. However, variations in the storage cycle days could be observed and it is necessary to bring the stocks of finished goods to the lowest possible. This will help to further reduce the storage cycle days yielding high returns.

6.7.4 Collection cycle

The unit recorded collection cycle days ranging from 70 days to 126 days, with an average of 103 days. The collection cycle days were quite normal with a credit period of 60 days. The unit has scope to reduce the collection cycle by speeding up the dues collection, identifying right customers who are prompt in settling the dues. Sundry debtors has been steadily increasing from 1996-97 and the unit must take steps to reduce it as it is supplying quality paper and boards to its customers and may insist on cash sales. The management is also quite efficient in containing the component cycles and producing better results.

6.7.5 Total operating cycle

The total operating cycle days were above 900 days (about 3 years) during the first three years, from 1991-92 to 1993-94. From 1994-95 onwards it had shown improvement by reducing the total operating cycle to within one year. Improvements in technology coupled with energetic management and identifying right markets have helped the unit to post comfortable total operating cycle days after 1994-95. Efforts are needed to improve marketing further with more value added products than plain file boards and flap boards. The turnover of working capital ratios wore also quite satisfactory, with an average of 1.35.
6.8 WORKING CAPITAL ANALYSIS OF HANDMADE PAPER UNIT, VEERARAGAVAPURAM

The component cycles and the total operating cycles are presented in Table 6.5 for the handmade paper unit at Veeraragavapuram.

6.8.1 Net Raw Material Cycle

The unit recorded gross raw material cycle ranging from 64 days to 1367 days with very high fluctuations. The unit could not improve consumption of raw materials. Lower consumption coupled with excessive stocks of raw material has resulted in very long gross raw material cycles. In 1995-96, the unit procured huge volumes of raw materials from Avadi ordnance clothing factory in a tie up arrangement which resulted in long raw material cycle. The unit had stocked the raw material for about four years leading to high inventory carrying cost and deterioration of raw material because of keeping it for long duration. The unit has to identify the exact quantity of raw material required per batch and keep minimum stocks to avoid wastage out of long storage decays. Lack of attention to material management has resulted in such long gross raw material cycles. Adequate, care and material planning are to be undertaken to keep the unit running.

The unit has recorded trade credit cycle days of between 30 days and 167 days. In 1991-92, 1996-97 and in 1998-99 the credit cycle days were very long which calls for proper purchasing policy to keep goodwill among the suppliers of raw materials.

The net raw material cycle days for the Veeraragavapuram unit ranged between 34 days and 947. It is an indication that the raw materials were kept in the raw materials stores for about a year before they were issued for production proposes. Material management and inventory control practices have to be toned up to shorten the raw material cycle
Table No. 6.5
Handmade Paper Units, Veeraragavapuram – Operating Cycle

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Year</th>
<th>R.M Cycle</th>
<th>Conversion Cycle</th>
<th>Storage Cycle</th>
<th>Collection Cycle</th>
<th>Total Operating Cycle</th>
<th>W.C Turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1991-92</td>
<td>250</td>
<td>38</td>
<td>255</td>
<td>65</td>
<td>608</td>
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<td>2.</td>
<td>1992-93</td>
<td>100</td>
<td>20</td>
<td>160</td>
<td>62</td>
<td>342</td>
<td>1.07</td>
</tr>
<tr>
<td>3.</td>
<td>1993-94</td>
<td>115</td>
<td>17</td>
<td>268</td>
<td>57</td>
<td>457</td>
<td>0.45</td>
</tr>
<tr>
<td>4.</td>
<td>1994-95</td>
<td>104</td>
<td>27</td>
<td>106</td>
<td>65</td>
<td>302</td>
<td>1.21</td>
</tr>
<tr>
<td>5.</td>
<td>1995-96</td>
<td>34</td>
<td>10</td>
<td>74</td>
<td>90</td>
<td>208</td>
<td>1.75</td>
</tr>
<tr>
<td>6.</td>
<td>1996-97</td>
<td>497</td>
<td>30</td>
<td>63</td>
<td>67</td>
<td>657</td>
<td>0.55</td>
</tr>
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<td>7.</td>
<td>1997-98</td>
<td>345</td>
<td>42</td>
<td>56</td>
<td>90</td>
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<td>0.68</td>
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<td>8.</td>
<td>1998-99</td>
<td>233</td>
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<td>185</td>
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<td>512</td>
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<td>9.</td>
<td>1999-2000</td>
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<td>895</td>
<td>87</td>
<td>1941</td>
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<td>870</td>
<td>90</td>
<td>1505</td>
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<tr>
<td></td>
<td></td>
<td>306</td>
<td>34</td>
<td>293</td>
<td>74</td>
<td>706</td>
<td>0.75</td>
</tr>
</tbody>
</table>

Source: Computed from the annual audited reports of Veeraragavapuram, H.M.P unit by the researcher
Fig - 25
Handmade Paper Unit, Veeraragavapuram - Operating Cycle

Cycle days

Year


Collection Cycle
Storage Cycle
Conversion Cycle
R.M Cycle
days. Adequate training in material management has to be imparted to the unit in charge for successful operation of the unit.

6.8.2 Conversion cycle

Conversion cycle days were quite short and crisp with a range of 12 days to 115 days. Only in 2000-01 the unit has recorded very long conversion cycle due to excess stocking of working in progress. In other years, the unit managed comfortably in respect of conversion cycle days. The unit has highly skilled labourers who are partly responsible for recording such shorter durations of conversion cycle days despite having conventional technologies like auto vats and dipping vats. Primary data source indicate that the unit has many machineries which require repairing.

When the repaired machinery are toned up for production purposes, it could further reduce conversion cycle days and enlarge the production value. Attention is needed to repair the machinery for achieving production quantity.

6.8.3 Storage cycle

The unit recorded storage cycle days ranging from 56 days to 895 days with an average of 293 days. The unit had recorded shorter cycle days during 1995-96 to 1997-98 and longer durations during 1999-2001. The sharp fluctuations are attributed at to the absence of right choice of product mix, exclusive dependence on Tamil Nadu KVIB for sales, poor marketing network and linkages and poor quality of the outputs. Identification of right market and improvement in the quality of the output have to be addressed immediately to reduce the stocks of finished goods. Energetic marketing alone could save the unit from very long storage cycles experienced in 1999-2000 and 2000-01.
6.8.4 Collection cycle

The unit has recorded collection cycle days ranging from 57 days. As the unit is located near the capital city, Chennai, and it could contact the KVIB or the paper dealers for expediting fast collection of sales dues, the collection cycle days were quite stable during the study period when compared to other component cycles experienced by the unit. To cash in on this fast collection of dues, the unit has to produce quality paper products in different varieties to the satisfaction of the customers.

6.8.5 Total operating cycle

The unit recorded total operating cycle days ranging from 208 days to 1941 days with sharp fluctuations. The shortest duration was achieved in 1995-96 due to better management of conversion cycle, storage cycle and collection cycle days. The longest duration of 1994 days was recorded in 1999-2000 due to long net raw material cycle and storage cycle each responsible for 3 years. Correspondingly the turnover of working capital ranged from 0.19 to 1.75 with an average of 0.75. Improvements are needed in material management, toning up machinery and keeping the machinery in order, producing quality outputs and establishing right markets and linkages.

6.9 SUMMARY

Assessment of management of working capital through operating cycle was undertaken in the present work to identify the pitfalls in the management practices. Being a labour intensive activity, the scope for advanced technologies and automated production systems are very low. In such conditions, the success of the business operations in handmade paper production units will depend on the successful manicuring of the current assets. Hence the management of working capital plays a key role in deciding the future thrust for these units. It revealed major deficiencies as out of the five units under review, three units, namely the handmade
the handmade paper unit at Poonavarayankottai and the handmade paper unit at Veeraragavapuram were bogged down by long net raw material cycles and storage cycle affecting their business prospects.

In the case of the handmade paper unit Thiruchengodu, they have expanded their production base by introducing cylinder mould and enhanced the quality of output to satisfy the market demands.

Though the handmade paper unit at Pidagam had the cylinder mould technology its managerial incompetence and lack of marketing skills resulted in long net raw material cycles and storage cycles. To tone up the three handmade paper units at Pidagam, Poonvarayankottai and Veeraragavapuram, the apex body KVIB has to ensure the following steps:

1. Training the unit in-charges in material management, inventory control, production planning and quality control of handmade paper unit.
2. Fixing benchmarks for each unit to maintain efficient operational management and to ensure productivity of operations.
3. Granting sufficient autonomy to market the products at competitive prices through establishing market linkages and net working and to streamline their purchase management practices, evolve a sound production plan and control techniques, ensure measures to improve the quality of their outputs, evolve right choice of products with higher value addition and establish appropriate independent marketing linkages.

Enthusiastic innovative managements like those at the handmade paper unit at Senbagapudhur and the handmade paper unit at Thiruchengodu have done fairly well by improving the technologies for improving the quantity and quality of the paper-, establishing right market
linkages with multiple varieties. These units have posted reasonable success due to the competence of the management. For example the handmade paper unit at Senbagapudur has done fairly well despite their conventional technologies like dipping vats and auto vats. Due to efficient inventory control techniques, right choice of product mix, quality products and independent marketing, it has shown better management of working capital.

Thus, the hypothesis stating that the operating cycles of the working capital management would be very long due to absence of vigorous marketing strategies has been proved as the handmade paper units at Pidagam, Ponnavarayankottai and Veeraragavapuram posted very long operating cycles, particularly storage and collection cycles, while the handmade paper unit at Senbagapuram and Thiruchengodu posted shorter storage and collection cycles due to their marketing efficiency. Among these two, the handmade paper unit at Senbagapurdur recorded short and crisp storage cycles due to marketing skills and the quality of the product.
REFERENCES