Chapter 5: Findings, Recommendations & Conclusion

5.1 Findings:

Building on the frequencies obtained by targeted study samples through questionnaire, the researcher reached to significant results through calculation some important variables by using SPSS with help of the measures adopted of the study results by Likert Scale;

The obtained results by calculation of Std Deviation, Arithmetic Mean and % of Mean, could to support reliability of study questions and prove true of research hypotheses as under:

5.1.1 Practical Findings:

First Hypothesis:

Logistic management in Yemen is underdeveloped, it impacts on lose revenues.

In order to examine the first hypothesis and to demonstrate whether it is proved or disproved, there were assigned questions prepared by the researcher for testing this hypothesis, the direct questions from 1 to 26 were set for such purpose, this was adopted by way of comparison.

Diagnosis of the study variables:-

The results of analysis may be shown as under in the following table:
### Results of questions analysis related to first hypothesis:

**TABLE No. (5.1) : Results of analysis to 1st Hypothesis**

<table>
<thead>
<tr>
<th>No. of q</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>% of Mean</th>
<th>Level of Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.31</td>
<td>0.686096</td>
<td>86.25%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>2</td>
<td>4.40</td>
<td>0.850912</td>
<td>88.00%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>3</td>
<td>3.83</td>
<td>0.868215</td>
<td>76.50%</td>
<td>Agree</td>
</tr>
<tr>
<td>4</td>
<td>3.75</td>
<td>0.974355</td>
<td>75.00%</td>
<td>Agree</td>
</tr>
<tr>
<td>5</td>
<td>4.69</td>
<td>0.667391</td>
<td>93.75%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>6</td>
<td>3.90</td>
<td>0.704416</td>
<td>78.00%</td>
<td>Agree</td>
</tr>
<tr>
<td>7</td>
<td>3.76</td>
<td>1.116547</td>
<td>75.25%</td>
<td>Agree</td>
</tr>
<tr>
<td>8</td>
<td>4.04</td>
<td>0.683323</td>
<td>80.75%</td>
<td>Agree</td>
</tr>
<tr>
<td>9</td>
<td>4.14</td>
<td>0.977516</td>
<td>82.75%</td>
<td>Agree</td>
</tr>
<tr>
<td>10</td>
<td>3.70</td>
<td>0.998733</td>
<td>74.00%</td>
<td>Agree</td>
</tr>
<tr>
<td>11</td>
<td>4.04</td>
<td>0.538252</td>
<td>80.75%</td>
<td>Agree</td>
</tr>
<tr>
<td>12</td>
<td>4.59</td>
<td>0.881508</td>
<td>91.75%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>13</td>
<td>4.36</td>
<td>0.715891</td>
<td>87.25%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>14</td>
<td>4.41</td>
<td>0.669285</td>
<td>88.25%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>15</td>
<td>4.68</td>
<td>0.568698</td>
<td>93.50%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>16</td>
<td>4.00</td>
<td>1.043364</td>
<td>80.00%</td>
<td>Agree</td>
</tr>
<tr>
<td>17</td>
<td>4.33</td>
<td>0.938286</td>
<td>86.50%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>18</td>
<td>3.94</td>
<td>0.849309</td>
<td>78.86%</td>
<td>Agree</td>
</tr>
<tr>
<td>19</td>
<td>4.11</td>
<td>0.636322</td>
<td>82.25%</td>
<td>Agree</td>
</tr>
<tr>
<td>20</td>
<td>3.74</td>
<td>0.91047</td>
<td>74.75%</td>
<td>Agree</td>
</tr>
<tr>
<td>21</td>
<td>4.04</td>
<td>0.561277</td>
<td>80.75%</td>
<td>Agree</td>
</tr>
<tr>
<td>22</td>
<td>3.98</td>
<td>0.550604</td>
<td>79.50%</td>
<td>Agree</td>
</tr>
<tr>
<td>23</td>
<td>4.38</td>
<td>0.905329</td>
<td>87.50%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>24</td>
<td>3.99</td>
<td>0.702505</td>
<td>79.75%</td>
<td>Agree</td>
</tr>
<tr>
<td>25</td>
<td>4.18</td>
<td>0.611597</td>
<td>83.50%</td>
<td>Agree</td>
</tr>
<tr>
<td>26</td>
<td>4.65</td>
<td>0.65796</td>
<td>93.00%</td>
<td>Fully Agree</td>
</tr>
</tbody>
</table>

Source: Statistical Package for Social Science (SPSS)
Final results of first hypothesis analysis:-

TABLE No. (5.2) : Final Results of 1st Hypothesis

<table>
<thead>
<tr>
<th>No. of Hypothesis</th>
<th>Mean of hypothesis</th>
<th>% of Mean</th>
<th>Level of hypothesis response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.12</td>
<td>47.82%</td>
<td>Agree</td>
</tr>
</tbody>
</table>

Source:- Statistical Package for Social Science (SPSS)

As looking at table no.5.1 , the researcher observed that the highest value of Mean of questions has been attained by q no.5 with Mean 4.69, % stood at 93.75% , and standard deviation of this question was 0.667391. this indicate that the study sample Totally Agree that **The private sector has no efficient marine transport system for moving goods and people.**

While , the lowest value of Mean of questions has been achieved by q no. 10 with Mean 3.70, 74% % of Mean, and standard deviation of this question was 0.998733. these values refers to the study sample Agree that **You don’t have equipped warehouses close to ports.**

This indicates that values of questions achieved between the highest value and lowest value are favorably supporting for accepting hypothesis No.1.

In general , table No. 5.2 shows that the mean of hypothesis No. 1 reached to 4.12 and % of mean was 82.47%, this demonstrates that the study sample Agree this hypothesis with 95%certainty degree.

This confirms that the hypothesis totally has been accepted by study sample.
Second Hypothesis:

The potential and capacity of the ports is underutilized.

In order to examine the second hypothesis and to demonstrate whether it is proved or disproved, there were assigned questions prepared by the researcher for testing this hypothesis, the direct questions from 27 to 48 were set for such purpose , this was adopted by way of comparison.

Diagnosis of the study variables:

The results of analysis may be shown as under in the following table.

Results of questions analysis related to second hypothesis:

<table>
<thead>
<tr>
<th>No. of q</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>% of Mean</th>
<th>Level of Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>4.78</td>
<td>0.449331</td>
<td>95.50%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>28</td>
<td>3.84</td>
<td>0.833534</td>
<td>76.75%</td>
<td>Agree</td>
</tr>
<tr>
<td>29</td>
<td>3.78</td>
<td>0.810922</td>
<td>75.50%</td>
<td>Agree</td>
</tr>
<tr>
<td>30</td>
<td>4.53</td>
<td>0.693094</td>
<td>90.50%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>31</td>
<td>3.81</td>
<td>0.858225</td>
<td>76.25%</td>
<td>Agree</td>
</tr>
<tr>
<td>32</td>
<td>4.25</td>
<td>1.025004</td>
<td>85.00%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>33</td>
<td>3.99</td>
<td>0.947932</td>
<td>79.75%</td>
<td>Agree</td>
</tr>
<tr>
<td>34</td>
<td>4.15</td>
<td>0.764729</td>
<td>83.00%</td>
<td>Agree</td>
</tr>
<tr>
<td>35</td>
<td>3.69</td>
<td>0.988462</td>
<td>73.75%</td>
<td>Agree</td>
</tr>
<tr>
<td>36</td>
<td>3.78</td>
<td>0.841563</td>
<td>75.50%</td>
<td>Agree</td>
</tr>
<tr>
<td>37</td>
<td>3.70</td>
<td>0.832869</td>
<td>74.00%</td>
<td>Agree</td>
</tr>
<tr>
<td>38</td>
<td>3.71</td>
<td>0.874299</td>
<td>74.25%</td>
<td>Agree</td>
</tr>
<tr>
<td>39</td>
<td>3.90</td>
<td>0.880161</td>
<td>78.00%</td>
<td>Agree</td>
</tr>
<tr>
<td>40</td>
<td>3.79</td>
<td>1.014998</td>
<td>75.75%</td>
<td>Agree</td>
</tr>
<tr>
<td>41</td>
<td>4.59</td>
<td>0.774495</td>
<td>91.75%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>42</td>
<td>4.58</td>
<td>0.651677</td>
<td>91.50%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>43</td>
<td>4.08</td>
<td>0.725224</td>
<td>81.50%</td>
<td>Agree</td>
</tr>
<tr>
<td>44</td>
<td>4.80</td>
<td>0.513119</td>
<td>96.00%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>45</td>
<td>4.09</td>
<td>0.782624</td>
<td>81.75%</td>
<td>Agree</td>
</tr>
<tr>
<td>46</td>
<td>3.94</td>
<td>0.785046</td>
<td>78.75%</td>
<td>Agree</td>
</tr>
<tr>
<td>47</td>
<td>4.68</td>
<td>0.545987</td>
<td>93.50%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>48</td>
<td>4.68</td>
<td>0.775821</td>
<td>93.50%</td>
<td>Fully Agree</td>
</tr>
</tbody>
</table>

Source: Statistical Package for Social Science (SPSS)
Final results of Second hypothesis analysis:

**TABLE (5.4) : Final Results of 2nd Hypothesis**

<table>
<thead>
<tr>
<th>No. No. of Hypothesis</th>
<th>Mean of Hypo</th>
<th>% of Mean</th>
<th>Level of Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>4.68</td>
<td>82.81%</td>
<td>Agree</td>
</tr>
</tbody>
</table>

As can be seen through table No.5.3, the highest value of Mean of questions has been attained by q no.27 with Mean4.78, standard deviation of this question stood at 0.449331, and mean % was 95.50%. This indicates that the study sample 
*Totally Agree* that *The private sector has no efficient marine transport system for moving goods and people.*

While, the lowest value of Mean of questions has been achieved by q no.35 with Mean3.70, 0.988462 standard deviation, and mean % of this question was 73.75%. These values refer to the study sample *Agree* that *You don’t have equipped warehouses close to ports*. This indicates that values of questions achieved between the highest value and lowest value is favorably supporting for accepting hypothesis no.2.

In general, table no. 5.4 shows that the mean of hypothesis no.2 reached up to 4.68 and % of mean was 82.81%, this demonstrates that the study sample *Agree* this hypothesis with 95% certainty degree.

This confirms that the hypothesis totally has been accepted by study sample.
Chapter 5: Findings, Recommendations & Conclusion

Third Hypothesis:

Poor roads networks in the country has hampered communication to rural areas of Yemen.

In order to examine the third hypothesis and to demonstrate whether it is proved or disproved, there were assigned questions prepared by the researcher for testing this hypothesis, the direct questions from 49 to 66 were set for such purpose, this was adopted by way of comparison.

Diagnosis of the study variables:

The results of analysis may be shown as under in the following table.

Results of questions analysis related to third hypothesis:

TABLE No. (5.5) : Results of analysis to 3rd Hypothesis

<table>
<thead>
<tr>
<th>No. of q</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>% of Mean</th>
<th>Level of Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>49</td>
<td>4.40</td>
<td>0.835903</td>
<td>88.00%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>50</td>
<td>4.44</td>
<td>0.925637</td>
<td>88.75%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>51</td>
<td>4.36</td>
<td>0.783432</td>
<td>87.25%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>52</td>
<td>4.34</td>
<td>0.615079</td>
<td>86.75%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>53</td>
<td>4.04</td>
<td>0.538252</td>
<td>80.75%</td>
<td>Agree</td>
</tr>
<tr>
<td>54</td>
<td>3.95</td>
<td>0.744601</td>
<td>79.00%</td>
<td>Agree</td>
</tr>
<tr>
<td>55</td>
<td>4.64</td>
<td>0.783432</td>
<td>92.75%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>56</td>
<td>3.96</td>
<td>0.90629</td>
<td>79.25%</td>
<td>Agree</td>
</tr>
<tr>
<td>57</td>
<td>3.70</td>
<td>0.94668</td>
<td>74.00%</td>
<td>Agree</td>
</tr>
<tr>
<td>58</td>
<td>3.60</td>
<td>0.92299</td>
<td>72.00%</td>
<td>Agree</td>
</tr>
<tr>
<td>59</td>
<td>4.10</td>
<td>0.607964</td>
<td>82.00%</td>
<td>Agree</td>
</tr>
<tr>
<td>60</td>
<td>4.58</td>
<td>0.853511</td>
<td>91.50%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>61</td>
<td>4.00</td>
<td>0.420969</td>
<td>80.00%</td>
<td>Agree</td>
</tr>
<tr>
<td>62</td>
<td>4.51</td>
<td>0.693437</td>
<td>90.25%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>63</td>
<td>4.00</td>
<td>0.993651</td>
<td>80.00%</td>
<td>Agree</td>
</tr>
<tr>
<td>64</td>
<td>4.09</td>
<td>0.599446</td>
<td>81.75%</td>
<td>Agree</td>
</tr>
<tr>
<td>65</td>
<td>3.78</td>
<td>1.221899</td>
<td>75.50%</td>
<td>Agree</td>
</tr>
<tr>
<td>66</td>
<td>4.80</td>
<td>0.663707</td>
<td>96.00%</td>
<td>Fully Agree</td>
</tr>
</tbody>
</table>

Statistical Package for Social Science (SPSS)
Final results of third hypothesis analysis:

TABLE No. (5.6) : Final Results of 3rd Hypothesis

<table>
<thead>
<tr>
<th>No.of Hypothesis</th>
<th>Mean of Hypothesis</th>
<th>% of Mean</th>
<th>Level of Hypothesis response</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>4.18</td>
<td>83.64%</td>
<td>Agree</td>
</tr>
</tbody>
</table>

Source: Statistical Package for Social Science (SSPS)

Through table no. 5.5, the researcher observed that the highest value of Mean of questions has been attained by q no.66 with Mean 4.80, standard deviation of this question stood at 0.663707 and mean % was 96%. This indicates that the study sample Totally Agree that There is no periodical maintenance curbs deterioration of road networks.

While, the lowest value of Mean of questions has been achieved by q no.58 with Mean 3.60, 0.922298 standard deviation, and mean % of this question was 72%. These values refer to the study sample Agree that The economic utility means the difference of costs before paving roads to need areas and after paving this indicate that values of questions achieved between the highest value and lowest value is favorably supporting for accepting hypothesis no.3.

In general, table no. 5.6 shows that the mean of hypothesis no. 3 reached to 4.18 and % of mean was 83.64%, this demonstrates that the study sample Agree this hypothesis with 95% certainty degree.

This confirms that the hypothesis totally has been accepted by study sample.

Fourth Hypothesis:

Transportation policy of Yemen is in adequate.

In order to examine the fourth hypothesis and to demonstrate whether it is proved or disproved, there were assigned questions prepared by the researcher for testing this hypothesis, the direct questions from 67 to 95 were set for such purpose, this was adopted by way of comparison.

Diagnosis of the study variables:-

The results of analysis may be shown as under in the following table:
### Results of questions analysis related to fourth hypothesis:

**TABLE No. (5.7) : Results of analysis to 4th Hypothesis**

<table>
<thead>
<tr>
<th>No. of q</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>% of Mean</th>
<th>Level of Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>67</td>
<td>4.15</td>
<td>0.786682</td>
<td>83.00%</td>
<td>Agree</td>
</tr>
<tr>
<td>68</td>
<td>4.61</td>
<td>0.502783</td>
<td>92.13%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>69</td>
<td>4.26</td>
<td>0.905933</td>
<td>85.13%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>70</td>
<td>4.04</td>
<td>0.906627</td>
<td>80.88%</td>
<td>Agree</td>
</tr>
<tr>
<td>71</td>
<td>4.57</td>
<td>0.697001</td>
<td>91.38%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>72</td>
<td>4.21</td>
<td>0.904891</td>
<td>84.13%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>73</td>
<td>3.84</td>
<td>0.917253</td>
<td>76.75%</td>
<td>Agree</td>
</tr>
<tr>
<td>74</td>
<td>4.54</td>
<td>0.662062</td>
<td>90.88%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>75</td>
<td>3.86</td>
<td>0.853014</td>
<td>77.13%</td>
<td>Agree</td>
</tr>
<tr>
<td>76</td>
<td>3.74</td>
<td>0.961442</td>
<td>74.75%</td>
<td>Agree</td>
</tr>
<tr>
<td>77</td>
<td>3.98</td>
<td>0.921251</td>
<td>79.63%</td>
<td>Agree</td>
</tr>
<tr>
<td>78</td>
<td>4.29</td>
<td>0.819476</td>
<td>85.75%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>79</td>
<td>4.01</td>
<td>0.968023</td>
<td>80.13%</td>
<td>Agree</td>
</tr>
<tr>
<td>80</td>
<td>3.94</td>
<td>0.606535</td>
<td>78.88%</td>
<td>Agree</td>
</tr>
<tr>
<td>81</td>
<td>4.09</td>
<td>0.416588</td>
<td>81.88%</td>
<td>Agree</td>
</tr>
<tr>
<td>82</td>
<td>3.97</td>
<td>0.686087</td>
<td>79.38%</td>
<td>Agree</td>
</tr>
<tr>
<td>83</td>
<td>4.16</td>
<td>0.45622</td>
<td>83.13%</td>
<td>Agree</td>
</tr>
<tr>
<td>84</td>
<td>4.80</td>
<td>0.591342</td>
<td>96.00%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>85</td>
<td>3.82</td>
<td>0.950815</td>
<td>76.38%</td>
<td>Agree</td>
</tr>
<tr>
<td>86</td>
<td>4.83</td>
<td>0.456263</td>
<td>96.50%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>87</td>
<td>3.96</td>
<td>0.920397</td>
<td>79.13%</td>
<td>Agree</td>
</tr>
<tr>
<td>88</td>
<td>4.58</td>
<td>0.686545</td>
<td>91.63%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>89</td>
<td>4.36</td>
<td>0.928158</td>
<td>87.25%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>90</td>
<td>3.89</td>
<td>0.922104</td>
<td>77.88%</td>
<td>Agree</td>
</tr>
<tr>
<td>91</td>
<td>4.49</td>
<td>0.831665</td>
<td>89.75%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>92</td>
<td>4.17</td>
<td>0.966234</td>
<td>83.38%</td>
<td>Agree</td>
</tr>
<tr>
<td>93</td>
<td>4.77</td>
<td>0.528697</td>
<td>95.38%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>94</td>
<td>4.19</td>
<td>0.639348</td>
<td>83.88%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>95</td>
<td>4.09</td>
<td>0.986624</td>
<td>81.75%</td>
<td>Agree</td>
</tr>
</tbody>
</table>

Source: Statistical Package for Social Science (SPSS)
Final results of the fourth hypothesis analysis:

**TABLE No. (5.8) : Final Results of 4th Hypothesis**

<table>
<thead>
<tr>
<th>No. of Hypothesis</th>
<th>Mean of Hypothesis</th>
<th>% of mean</th>
<th>Level of Hypo. response</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4</strong></td>
<td><strong>4.22</strong></td>
<td><strong>84.31%</strong></td>
<td><strong>Totally Agree</strong></td>
</tr>
</tbody>
</table>

Source: Statistical Package for Social Science (SPSS)

As looking at table no. 5.7, the researcher observed that the highest value of Mean of questions has been attained by q No. 93 with Mean 4.77, standard deviation of this question stood at 0.528697, and mean % was 95.38%. This indicate that the study sample Totally Agree that Although many procedures has been taken by government for combating piracy, all of these efforts were of a little avail.

While the lowest value of Mean of questions has been achieved by q No. 76 with Mean 3.74, 0.961442 standard deviation, and mean % of this question was 74.75%. These values refers to the study sample Agree that Transportation policies were not carried out according to priorities. This indicate that values of questions achieved between the highest value and lowest value is favorably supporting for accepting hypothesis No. 4.

In general, table no. 5.8 shows that the mean of hypothesis no .4 reached to 4.22 and % of mean was83.31%, this demonstrate that the study sample Agree this hypothesis with 95% certainty degree.

This confirms that the hypothesis totally has been accepted by study sample.

**Fifth Hypothesis:**

The government of Yemen had poor management of roads, seaports and airports.

In order to examine the fifth hypothesis and to demonstrate whether it is proved or disproved, there were assigned questions prepared by the researcher for testing this hypothesis, the direct questions from 96 to 120 were set for such purpose, this was adopted by way of comparison.
**Diagnosis of the study variables:**

The results of analysis may be shown as under in the following table:

**Results of questions analysis related to Fifth hypothesis:**

**TABLE No. (5.9) : Results of analysis to 5th Hypothesis**

<table>
<thead>
<tr>
<th>No. of q</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>% of Mean</th>
<th>Level of Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>96</td>
<td>4.07</td>
<td>0.965583</td>
<td>81.38%</td>
<td>Agree</td>
</tr>
<tr>
<td>97</td>
<td>4.08</td>
<td>0.674758</td>
<td>81.64%</td>
<td>Agree</td>
</tr>
<tr>
<td>98</td>
<td>4.28</td>
<td>1.053129</td>
<td>85.63%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>99</td>
<td>3.92</td>
<td>0.910953</td>
<td>78.38%</td>
<td>Agree</td>
</tr>
<tr>
<td>100</td>
<td>4.19</td>
<td>0.639348</td>
<td>83.88%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>101</td>
<td>4.18</td>
<td>0.903326</td>
<td>83.63%</td>
<td>Agree</td>
</tr>
<tr>
<td>102</td>
<td>4.11</td>
<td>0.644156</td>
<td>82.25%</td>
<td>Agree</td>
</tr>
<tr>
<td>103</td>
<td>4.77</td>
<td>0.451718</td>
<td>95.38%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>104</td>
<td>4.64</td>
<td>0.637871</td>
<td>92.88%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>105</td>
<td>4.01</td>
<td>0.760565</td>
<td>80.25%</td>
<td>Agree</td>
</tr>
<tr>
<td>106</td>
<td>3.99</td>
<td>0.89011</td>
<td>79.75%</td>
<td>Agree</td>
</tr>
<tr>
<td>107</td>
<td>4.13</td>
<td>0.847652</td>
<td>82.63%</td>
<td>Agree</td>
</tr>
<tr>
<td>108</td>
<td>4.02</td>
<td>0.850245</td>
<td>80.38%</td>
<td>Agree</td>
</tr>
<tr>
<td>109</td>
<td>4.69</td>
<td>0.595449</td>
<td>93.75%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>110</td>
<td>4.06</td>
<td>0.855959</td>
<td>81.13%</td>
<td>Agree</td>
</tr>
<tr>
<td>111</td>
<td>4.16</td>
<td>0.968347</td>
<td>83.13%</td>
<td>Agree</td>
</tr>
<tr>
<td>112</td>
<td>4.63</td>
<td>0.620629</td>
<td>92.63%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>113</td>
<td>3.94</td>
<td>0.810675</td>
<td>78.88%</td>
<td>Agree</td>
</tr>
<tr>
<td>114</td>
<td>4.12</td>
<td>1.178272</td>
<td>82.38%</td>
<td>Agree</td>
</tr>
<tr>
<td>115</td>
<td>4.03</td>
<td>1.042625</td>
<td>80.63%</td>
<td>Agree</td>
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<td>116</td>
<td>4.11</td>
<td>0.800845</td>
<td>82.25%</td>
<td>Agree</td>
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<tr>
<td>117</td>
<td>4.57</td>
<td>0.545097</td>
<td>91.38%</td>
<td>Fully Agree</td>
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<tr>
<td>118</td>
<td>4.48</td>
<td>0.816111</td>
<td>89.50%</td>
<td>Fully Agree</td>
</tr>
<tr>
<td>119</td>
<td>3.90</td>
<td>0.884528</td>
<td>78.00%</td>
<td>Agree</td>
</tr>
<tr>
<td>120</td>
<td>4.32</td>
<td>0.763737</td>
<td>86.38%</td>
<td>Fully Agree</td>
</tr>
</tbody>
</table>

Source: Statistical Package for Social Science (SPSS)
Final analysis of fifth hypothesis results:

TABLE No. (5.10) : Final Results of 5th Hypothesis

<table>
<thead>
<tr>
<th>No. of Hypothesis</th>
<th>Mean of Hypothesis</th>
<th>% of Mean</th>
<th>Level of Hypothesis response</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4.22</td>
<td>84.32%</td>
<td>Totally Agree</td>
</tr>
</tbody>
</table>

Source: Statistical Package for Social Science (SPSS)

As can be seen from table no. 5.9, it is clear that the highest value of Mean of questions has been attained by q no.103 with Mean 4.77, standard deviation of this question stood at 0.451718 ,and mean % was 95.38%. this indicate that the study sample Totally Agree that Salaries and wages of cadres at Yemeni seaports and airports are very low comparison with competitor ports.

While, the lowest value of Mean of questions has been achieved by q no.119 with Mean 3.90, 0.884528 standard deviation, and mean % of this question was 78.00%. these values refers to the study sample Agree that Untrained cadres and lack of periodical maintenance plan, led to wastage work hours. this indicates that values of questions achieved between the highest value and lowest value is favorably supporting for accepting hypothesis no.5.

In general, table no. 5.10 shows that the mean of hypothesis no .5 reached to 4.22 and % of mean was 84.32%,this demonstrate that the study sample Totally Agree this hypothesis with 95% certainty degree.

This boosts reliability of this hypothesis and demonstrate that the hypothesis totally has been accepted by study sample.
5.1.2 Theoretical Findings:

On light of the ensured results, the study came up with some important findings that can be summarized as follows:

A : General Transportation Policy & Management:

The study demonstrated that:

- The transport policies were not carried out according to the priority, that have been distinct through substantial number of projects which lack the feasibility and viability. Therefore, these projects have not ensured the economic utility.

- The provisions of transport infrastructure were not quite adequate in plans, this drawback led to deficiency and in adequacy the current infrastructure to play effective role in respect of flow goods and services.

- There was no efficient logistic policy for upgrading the system which contributed highly in respect of increasing involved time and costs as well as led to poor performance.

- The government didn’t invest sufficiently in transportation infrastructure at various ports especially seaports which constitute the most important link for moving goods and services as well as for supporting the economy through huge amount of revenues if they are buoyant ones.

- The most of infrastructure projects financed by external sources. this is considering one of the primary causes for delay implementation of Projects because of the involved time for seeking necessary finance sources.

- The precaution was not considered while choosing executing companies for implementation and operation various projects related to transport sector.

- The poor imports/exports policy affected negatively foreign trade activity through many inhibiting factors such as policy of open market and liberalization, additional fines and fees., poor infrastructure, long procedures, lack of real understanding regarding joining the global commercial blocks and activating role of commercial exchange in this respect.

- The delay approval of transportation laws which regulate transportation activities attributed to long procedures due to weak legislation base related to transportation system.
The government couldn’t to enforce rules for imposing specific tariff related to
transporting goods and people, especially in field of land transportation as the last
legislation related to transport tariff was in 2000, which created different costs of
transporting goods and services adopted by some illegal entities which reinforced
monopoly aspects.

The legislations and laws that regulate and facilitate participating private sector
were not activated, this situation has been clear by looking at various transport
systems (land, sea & air) lacks the effective participation of private sector, this is
mainly due to absence of the confidence between the investors and the
government because there is no real rules to regulate and protect rights of the
investors as rules change frequently.

The policy of minimizing of transportation costs has been failed because of ineffective logistic policy, as the current status of transportation systems lacks
intelligent transport systems, effective warehousing management and effective
transport management.

Although many procedures has been taken by government for combating piracy at
gulf of Aden, all efforts were of a little avail, this is attributed to ineffective
coordination among coast guards, inadequate provision of latest technology used
for tracing and attack.

There is urgent need for changing transportation policies in Yemen because it is
not compatible with current status of transportation.

The lack of clear organizational structure at various Transportation Corporations
caused dysfunction which created the poor performance.

There was interfacing of functions and duties of various government entities at
various ports, that hampered smooth flow of goods and services due to long time
of clearance.

The appointments at different transport organizations often based on the political
decree rather than the measurements supposed to be done in such respect such as:
qualification, competence and experience.

Most of managerial leaderships, their qualifications don’t compatible with duties
entrusted to them, resulting in ability handling and managing the organization in
proper manner.
The managerial leaderships, often unable to make decisions that achieve targets of organization which led to vulnerability of development and expansion programs at whole levels.

Mismanagement at various ports profound ineffective operational plans led to poor production capacity that reflects badly on smooth performance and reputation of ports wholly.

The team spirit between subordinates and high management is missed, which created conflict, due to that the involved time of accomplishment is longer.

The salaries and wages of cadres at Yemeni sea ports and airports are very low in comparison with competitor ports, this prevailing situation profound negative feelings towards the organization reflected unfavorably on the performance.

The incentives and rewards strategy for encouragement cadres were not adopted, that generated dissatisfaction and frustrated innovation of staff, because they are not feeling themselves part of organization.

The high management at various transportation authorities didn’t pay enough concern towards boost infrastructure for improving efficiency, it has been seen that concentration paid towards the managerial aspects while development programs remains neglected.

There was lacking of sound planning of manpower at organization and put right person at right place that profound haphazardness while decision making at different managerial levels.

Non adoption of successful managerial experience applied at rival ports for improving performance at Yemeni ports, this is attributed to absence continuous follow up about updates in this respect and weakness of training plans.

The incremental fatalities and congestion on roads caused by un sound transport management, due to absence technologies of intelligent transportation systems.

The marketing policy of seaports and airports services is ambiguous because ports lacks the specialist and qualified cadres in this field, there are some attempts for activating marketing policy, nevertheless, it was useless with poor infrastructure of Yemeni ports.
Chapter 5: Findings, Recommendations & Conclusion

- Increasing of operation costs at seaports and airports in spite of poor performance reflects drawbacks in financial management, this implies that there is no real financial plan for rationing costs depending on actual performance and revenues.

- The long procedures related to incoming and out coming ships and clearing of goods attributed to mismanagement through bad communication and coordination among several parties at seaports.

- The poor logistic management at transport sector corporations led to increasing cost, time and poor performance, this caused by un sound transport, warehousing, distributing management.

- In ability of managerial leaderships to deal efficiently with continuous strikes of staff and workers who claim for their rights attributed to oppression strategy adopted by some managerial leaders towards workers, there is huge gap between subordinates and high management.

- Untrained cadres and lack of periodical maintenance plan led to wastage work hours which declined the production capacity and affected adversely reputation of ports as whole.

- The rehabilitation and training programs doest not based on real plans heeds utilizing outputs effectively, that was distinct through frequent stoppages of equipments and wastage work hours due to un trained cadres in technical side, as well as untrained cadres in respect of managerial aspects.

B: Transportation systems & its infrastructure:

Land Transportation & its infrastructure:

The study demonstrated that:

- There was no effective, equipped public land transport for moving goods, services and people, as result, Yemen lose substantial revenues.

- Non availability of effective, safe public land transport system and unpaved road networks to tourism areas, hampered tourism industry in Yemen.

- The toll station system was not activated, insufficient specific taxation of road use, due to that Yemen lose important revenues may could upgrade system.
Due to lack of intelligent transport systems on the roads, congestion has been created, modes are exposed for accidents and goods exposed for damage. Accordingly, delivery of goods is not on time.

There was a serious shortage of capacity and skills in all institutions and firms involved in the sector as well as, there are staffing imbalances among Government units.

The local road consulting industry is at an early stage of development. Its growth has been hampered by reliance on in-house services by Government for design and supervision.

There was no national road safety strategy and no national unit clearly in charge and capable of carrying out the monitoring/evaluation of traffic safety.

There was hardship for transporting goods and services to the backward areas because of that areas lack of roads networks connections.

The rugged natural conditions of Yemen, hampered connection roads to backward areas which created difficulty of transporting goods and services from original point to those areas.

The roads network didn’t share the economic utility because of absence priority criteria during construction roads.

The weaknesses in road design have negatively affected in the past the economy of projects as well as project implementation and quality assurance.

The bad connection of roads to rural areas generated high transportation costs which led to high prices of goods and services and affected consumption habits of people.

The traffic and high axial weights of trucks that exceed roads capacity, contributed adversely to deterioration of roads and reducing the expected life of roads.

There were no effective and adequate roads to connect ports with backward areas, this situation hampered flow of goods smoothly to the various areas.

Generally, roads constructed by unexperienced local entrepreneurs, and there is no real periodical plan for roads maintenance which declined the estimated useful life of roads.
The social utility of roads was not ensured, because of rural areas lacks the main social services due to poor roads.

Roads fund didn’t contribute effectively in respect of maintenance roads timely because of insufficient finance which supposed to be obtained from contributor corporations.

The projects of roads and its maintenance lack adequate finance as fund is insufficient and far below what most other countries similar to Yemen spend on such maintenance.

**Marine Transportation & its infrastructure:**

The study demonstrated that:

- Yemen doesn’t possess marine transport system for moving goods, services and people, on the other hand, the private sector has no efficient marine transport system for moving goods and services.
- The waiting time of ships at seaports due to poor handling and long procedures made ships calls other competitive ports, that affected revenues negatively.
- Yemeni ports are not longer strategic centers for provision fuel, water and food to ships because of bad services.
- Lack Yemen to marine transport system contributed adversely to lose huge revenues and led to utilizing advantages of modern logistic techniques.
- The poor logistic services adversely affected foreign trade of Yemen (imports/exports) through increasing involved time and costs as well as deterioration of performance.
- The various ports in Yemen are not featured with competitive characteristics comparison with neighboring regional ports.
- In adequacy and in efficiency of handling equipments and intermodal modes at seaports, hampered efficient flow of goods and services.
- The wastage production hours at seaports due to continuous stoppage and damage of equipments, attribute to untrained cadre and poor operational plan in general.
Chapter 5: Findings, Recommendations & Conclusion

- The precaution and security measurements during operation and production process not sufficient, resulting accidents and crashes frequently.

- The berths at seaports not enough for accommodating vessels and not deep as well for receiving giant ships.

- The process of hauling and guiding ships often accompanied with inadequate experience and poor capacity of equipments, resulting crash ships into berths.

- The Yemeni seaports are not equipped with pelvises for maintenance ships, as a result, equipments of seaports necessitates to be maintained some other neighboring ports, which cost ports substantial amounts, supposed to be allocated for expansion and developments.

- The areas at seaports inadequate and unequipped to confront changing climate and weather, resulting damage of goods.

- The pricing of containers handling services and fines is high comparison with ports in region, this situation forces navigation lines to access neighboring ports which featured with high quality of services and less charges.

- The warehouses at seaports lack real measurements applied in warehousing management especially in respect of the dangerous goods.

- The locations of warehouses and areas far away from handling site contributed adversely in respect of increasing operational costs and time.

- There is shortage and fluctuating power at seaports which curb maximum operation capacity of cranes during handling process.

- The capacity of berths unequipped to carry heavy weights of cranes because construction and design those berths was not based on proper feasibility and viability studies, which increase uncertainty and risky averages.

- The areas given to investors at ports without real planning, hampered flow goods and services and restricted further expansion and development at seaports.

- Due to piracy, insurance of incoming ships to Yemeni seaports became high beyond measure, while the concerned parties didn’t take the necessary needful actions for treatments.

- There is a large gap between ports authorities and shipping agencies working at ports, because there is no specialized department concerned with shipping affairs.
Air transportation & its infrastructure:

The study demonstrated that:

- There is limited capacity of government air transportation in respect of transporting goods and people as Yemen government only possess one air line company sharing with shareholders 51% by government & 49% by shareholders and most of crafts out of order.

- The government air transportation with its limited capacity and high operational costs as well as absence financial transparency couldn’t achieve maximum profitability.

- The development strategy of Yemenia’ air line is risky and mobilizes public funds, because Yemenia air line has large sums of unpaid, airport fees,yemen oil company and insurance company which may in fact represent an indirect financial burdens to the airline’s recent losses.

- The study demonstrated that the (MoT’s institutional capacity and operational budget is limited and its role needs clarification. It also seems that the delineation between MoT’s and CAMA’s responsibilities is often too ambiguous.

- The adequate data are not available on almost every aspect of the sector. Including in sufficient, accurate and reliable data, for example in terms of traffic and finance, prevents any in-depth analysis of the sector and its development needs.

- The financial situation of the sector is unclear and there is insufficient available information regarding the overall use of funds.

- There is no explicit tariff policy aimed at cost recovery and making the sector financially self-sufficient.

- The private companies have not invested yet in air transport infrastructure nor are involved in airports operations, as well as have not got opportunity to take over moving goods and people.

- The ground services at Yemeni airports exclusively dominated by air official transporter (Yemenia) that led to poor performance because of absence of competition.

- The competition policy on the domestic market is ambiguous, that’s clear as the
Yemeni gave the operation rights for local flights to Alsaeeda airlines because Alsaeeda possesses the majority of shares (75%) while Yemenia invested only with (25%). Therefore shareholder of alsaeeda can easily lay claim to the exclusiveness to operate domestically and prevent other potential operators from receiving domestic traffic rights.

- There is no overall strategy for infrastructure development in the air transport sector and the existing evaluation of future passenger traffic is not well grounded.
- The airports lack the modern techniques and equipments in respect of moving luggage's and goods and lacks modern equipments for enwrapping, belting and refrigerating goods.
- The airports lack the necessary infrastructure (such as: hotels, restaurants and entertainments) comparison with international airports.
- Due to urban sprawl, Yemeni airports became in the middle of cities which restricted landing and departure movement.
- The runways at yemeni airports are not complying international aviation organization measurements, that has been proven by studies done by experts.
- The poor infrastructure of Yemeni airports and rugged nature of its location didn’t motivate other airlines for landing.
- Most of operational and managerial processes at various ports are managed by conventional systems and lack computerization especially the main two airports Sanaa and Aden.
- It is unclear whether development should concentrate on the three main airports. In addition, the ongoing investment program for secondary airports does not appear to be based on a precise plan.
5.2. **Recommendations:**

Through this study, some of recommendations were suggested; these recommendations can be summarized as following:

**A: General transportation policy & Management:**

The researcher recommend policy makers to focus on the effects of transportation on where people live and on where businesses locate; and on the effects that these location decisions have on land use patterns, congestion of urban transportation systems, use of natural resources, air and water quality, and the overall quality of life. Issues of urban sprawl, farmland preservation, and air and water quality have already pushed their way to the forefront of policy debates at both the national and local levels.

To make prudent decisions, policy makers must be equipped with the best information and analysis possible about the interactions among these various factors. The questions asked by policy makers are two sided. Not only do they want to know the effect of transportation on additional economic development, they also want to know the transportation needs of future growth, accordingly, the policy makers could come up with comprehensive vision regarding priority criteria while construction projects related various segment in transport sector.

The researcher recommend the policy makers to pay careful attention towards the provisions in plans related to transport infrastructure and operation because it has a great impact on the land and is the largest drainer of energy making transport sustainability array or issue.

The government recommended to raise level of investments in infrastructure and their related management strategies through concentration on vital projects that has viability and feasibility under the new technology program will generate different types, magnitudes, and longevity of costs and benefits. Both costs and benefits will have different degrees of risks associated with them. Certainly in the case of infrastructure development the loss of resources from making a bad decision are not easily recovered or reversed. Hence, the risks are perceived to be higher.
The policy makers have to make use of the experiences in many countries in field of logistics systems development such as Holland which began in eighties adopting panel of policies enabled it to become on of the most important centers of distributing in Europe, whether regarding movement of goods and passengers or making sound policies for distributing management or effective warehousing management, through huge investment allocated for transport services which characterized with high technologies and logistic services and considerable use of all communication and information technology applications.

Initiating certain mechanism for finance of infrastructure projects through serious principles embody viability and feasibility, focus on projects should executed first and making specific time table for implementation to avoid stumble projects, the main reason of stumbling attributed to adopting many projects, most of them are not serving the economic utility favorably, while distribution appropriations to those projects which causing fund shortage, as result, constant looking for external resources for covering finance gap.

Perhaps the most difficulties and obstacles facing the growth of the foreign trade sector is the difficulty of access to foreign markets, the weakness of the competitiveness of products and local goods and the disruption of Commodity Structure of Foreign Trade in favor of imports as a result of the lack of an integrated system to support and develop promising and underlying sectors and export them under global competition is uneven.

Therefore, the researcher recommend that development of exports should be a priority for the government to boost exports to play a role in supporting the national economy through:

- Adopting sound logistic policy contributes positively in respect of flow of goods and services smoothly and minimising cost, time and improving the performance level.

- Completing the development of the legal and institutional environment for foreign trade and passing laws that are compatible with the steps to join the World Trade Organization (WTO) and accelerate the accession measures taking into account the benefit of the development of Yemen among the least developed countries.
✓ Continuing the procedures for the establishment the anti-dumping and subsidy unit and completion of the establishment of the information base.

✓ Expanding the role of Yemen in regional economic blocs, especially for integration with the countries of the Gulf Cooperation Council and the Sana'a Forum countries.

✓ Raise the efficiency of marketing commodity exports and support the competitiveness of national products in foreign markets and subdue exports to the approved specifications.

✓ Encourage national companies to penetrate into the regional and international markets and the expansion of trade fairs for national products in foreign markets.

✓ The establishment of a financing system and ensure exports and providing studies on foreign markets through the updated information base.

✓ Activate trade agreements to benefit from the advantages and highlight the new agreements to serve the common interests with business partners.

✓ The development of the duty drawback system which contributes to stimulate exports and reduce the waste of public resources.

✓ Activating the role of embassies and commercial attaches to Yemen in activating trade cooperation.

Pay every Precaution while choosing executing companies for implementation and operation various projects related to transport sector, the mechanism should be done in this respect is to appoint committee affiliated to transport ministry to takes over study of presented tenders from several companies for executing projects, while checking tenders the most important criteria’s are the potentials, reputation, and experience, irrespective how much amount of presented tender, moreover, there must be time program for execution.

The researcher believes that the efficient interface of distribution, warehousing and transport management, has major role for enhancing transport system therefore, the researcher recommend that it must be modern techniques to be adopted such as: intelligent transport systems(ITSs),sound distribution, sound
warehousing management, hereby cost and time minimized, congestion overcome, and fatalities curbed.

- Enforcement the legislations that regulate transportation affairs and issuing specific tariff for moving goods and people for combating monopoly and making border for actions of some illegal entities which impose costs on their own pace which created monopoly increasingly.

- Initiating the convenient ground to private sector for providing rest of components of logistics systems such as: transport modes, warehousing, operation and management systems, information technology systems which reinforce management of these systems with high competence, this can be done by development and amendment the prevailing legislations for creating sound legislative framework for effective cooperation between public sector and private sector.

- Increase the efforts to improve many strategies to stop piracy attacks in Aden Gulf or at least how to deal with them, through activate role of coast guards by supporting forces with required equipments and tools as well as rehabilitation soldiers to how to deal efficiently with this risk, association with international society.

- Provide a security warning system that sends a warning from the ships in the event of exposure to risks including piracy, the automated tracking system tracks the ship in the course of an ongoing proceeding, and the automatic identification system is to provide information on the ship to the other ships and ports, and the coastal station as well as development of systems and controls, including coastal, whereby achieving the transfer of information with accuracy and speed.

- Despite the plans and legislatives related to ports and marine transportation in Yemen, they were not fruitful in reality neither in the country ports’ movement nor in the Yemeni foreign commerce movement, moreover, these legislatives didn’t ensure the desirable purpose because most of them was not putting in to practice, therefore, the researcher recommend to put them in to practice and follow up activate them.

- Regarding the legislatives, there was no comprehensive marine law for the marine considerations in Yemen. Regarding the marine environment and safety, there
must be a comprehensive law related to the signed international agreement concerning the marine activities. The General Authority for Marine Affairs had to sign the important international agreements in which Yemen is not a party. Such agreements were the international agreement to combat ships’ contamination (MARPOL), which was issued by the International Marine Organization and the International Work Organization 147, which is called the Commerce Navigation Agreement for the least standards to be applied by Yemen on the foreign ships.

In general, changing transportation policies to be compatible with the current situation of transportation sector in Yemen.

To restructure organizational structure for smooth performance and avoiding the dysfunction at transportation corporations.

To clarify the duties functions that entrusted to various parties at various ports for achieving high degree of the feedback and ensuring faster accomplishing.

To assign certain specifications for appointments and taken over responsibilities of high management at various corporations related to transportation sector, these specifications should be grounded by qualifications and competence, because the haphazardness of selecting the managers affect adversely on accomplishment of organization targets and lead to poor operations at these corporations.

The researcher recommends high management at different corporation to spread team spirit and make it principal concern for smooth performance at organizations.

To adopt strategy aims to raising salaries, wages at various Yemeni ports as it is executed at rival ports as well as, continuously adopting strategy of incentives and concessions for cadres, that definitely will enhance the performance and create satisfaction feelings among staff and will reinforce innovations , eliminate entirely frustrations.

As the researcher observed that the high management at various ports spend too much time in respect of managerial aspects but negligence aspects related to infrastructure, therefore, the researcher recommends high management at various ports to pay careful attention towards boosting infrastructure for increasing operation capacity.
The researcher recommends high management at different corporations for fair distribution of manpower aims to put right person at right place.

To adopt new strategy for development various Yemeni ports through making use of external techniques and successful managerial experience applied at competitor ports to cope up with advanced technologies, that will increase largely prospects of these ports. So that the marketing policy of different ports could to take place through attracting new

To reinforce infrastructure and improving services level, so that the marketing policy of different ports could to take place through attracting new navigation lines.

To make rationing for operation expenditures as revenues is low, and make clear financial policy so that the organization could meet its obligations timely and avoid imbalance in trade balance.

Adopting Rehabilitation and training programs at various ports (Land, Sea, and air) based on real plans heeds utilizing outputs effectively.

To deal with problems and suffering of workers favorably, to avoid constant strikes which waste work hours and affect operation capacity adversely, on the other hand, adopting real periodical maintenance plan aims to maintain the equipments and curb frequent stoppages and wastage work hours.

B: Transportation systems & its infrastructure:

Land transportation & its infrastructure:

The researcher recommend for establishing new corporation concerned with public land transport and support it with main infrastructure and services such as: new buses and trucks for effective moving of goods and people, departure and reception stations, toll stations, organized parking, refreshment stations, maintenance centers…etc, to contribute efficiently in respect of provision this sector with substantial revenues that will reduce burdens of government regarding finance this sector and make it self–financed.

The researcher recommend for adopting new strategy aims to optimum utilization for advanced technologies with regard to transport management, that is called
Intelligent transportation system (ITSs), for enhancing movement goods and people, curbing accidents and congestions.

- The researcher recommends activating the weight laws that protect roads from traffic and high axial weights of trucks.

- The researcher recommends implementing functional road classification for planning and monitoring, which involves evolving the organization from the current one to a new framework compatible with international practice, therefore the sector should be organized with the following important units:
  - Road planning unit
  - Road safety unit
  - Road maintenance fund
  - Foreign funded project management unit.

- The Ministry of Transportation (MOT) should be equipped with sufficient capacity for making design review and guidance to the contractors on desirable design changes and adequate monitoring and evaluation of the project's technical aspects.

- For a steady and substantial stream of work by looking for sufficient opportunities for partnership between foreign and local firms for faster development.

- The strategy of the sector should also be put in place for strengthening Yemen’s consulting profession in the field of road studies and road engineering. This would include outsourcing Government work to local consultants whenever feasible, ensuring that there is in the long term a regular and predictable demand for consultants’ services in the road sector, using partnerships between foreign specialists and local consultants to develop the industry (with training and mentoring obligations to benefit Yemeni consultants), ensuring fair treatment of consultants, and including local consultants in Government training programs.

- The role of the RMF should be explicit: it should focus on preventive routine and periodic maintenance and not be involved in road upgrading/rehabilitation. Performance-based maintenance contracts should be generalized when current pilots have made progress and a good approach has been identified. Hybrid “term maintenance” contracts should also be considered. Knowledge of the road network conditions and assessment of maintenance needs should be improved.
The use of consultants for design and supervision should be maximized, and manuals for routine and periodic maintenance should be established. An assessment of work load and staff needs is desirable.

- For effective coordination between transportation ministry and ministry of constructions involves initiating plans for construction roads by transportation ministry, then connection roads according to plans by ministry of constructions for ensuring economic utility and the priority measurements.

- Reviewing funding mechanism of road projects through:
  
  o Overall sector funding should remain substantial, at least above 1% to 1.5% of GNP.
  
  o Funding for routine and periodic maintenance should be increased substantially. The RMF budget should be increased from the current budget (YR 4 billion) up to (YR 8 billion) and urging the various parties for meeting their commitments towards provision (RMF) with required funds.
  
  o Funding for road rehabilitation and low cost/high returns upgrading should be increased.
  
  o The funding for urban main roads through Ministry of constructions should be reduced substantially.
  
  o The focus should be on projects with high economic and social rates of return and the start of premature projects.
  
  o The road budget should be rationalized by cancelling non-performing projects and concentrating funding for locally funded projects on economic and well performing contracts.
  
  o An integrated road sector strategy should be prepared taking full account of financial constraints. This work would include in particular:
    
    (i) updating the National Highway Master Plan, and
    
    (ii) preparing a national strategy for secondary and rural roads based on realistic estimates of available funding under a medium term expenditure framework.
  
  o The existing feasibility studies of large projects should be updated.
Chapter 5: Findings, Recommendations & Conclusion

- Multimodal urban transport master plans should be prepared for the larger cities as a basis, among other goals, for the justification of new urban road construction projects by ministry of constructions.

**Marine transportation & its infrastructure:**

Establishing public marine transportation corporation takes over the logistics services and moving goods and people.

In this respect, the researcher recommends the government to utilize the recent advanced technologies related to logistics revolution, in this regard, the public marine transportation has to contribute positively providing huge returns and revenues through transporting goods and people from particular seaport to another inside the country, this greatly will ensure high profitability and will reduce involved time and costs moreover, the ports authority can expand its activity through public marine transport corporation by moving goods and people internationally in the future, this evolving will reinforce Yemeni ports with competitive features.

Establishing national shipping corporation concerned with navigational affairs, take over attracting shipping lines and activating the competition between public sector and private sector for elimination monopoly and developing foreign trade.

Establishing commercial general departments at three main corporations (Red Sea Ports Corporation, Aden Gulf Ports Corporation, and Arabian Gulf Ports Corporation) and specification its functions which embody marketing for ports services, elimination the gap between ports administration and private shipping agencies for creating effective cooperation and treatment the navigation problems may arise, planning for expansion and development, commercial relation with banks, tenders and external purchasing, evaluation of ports performance.

In the ships movement administration; the use of complete ITC with radar system and the automatic identity identification makes it possible follow the ships movement and ensure the ships safety along the way to the ports and in the ports’ entrances and moorings.

Therefore, the researcher recommends for applying such systems for ensuring safety of ships, as well as recommend to adopt modern and advanced
technologies opportunities for securing ports such as: shippers and cargo data bases, border barriers, smart buoys, container security(RFID),and cargo scanning.

- Different parties at seaports to adopt effective strategy for efficient cooperation related to incoming and out coming ships procedures and goods clearance aims to improve the procedures and make it quicker.

- Providing the main components of logistic systems that related to trade, particularly, in respect of the infrastructure whether at seaport, air port, and dry ports as well as providing several modes of transportation, warehouses, distribution centers, communication infrastructure and effective handling services.

- There is an urgent need for activating transporting containers by land transportation chains through establishing internal containers terminals (ICD) or by internal dry ports, otherwise, by internal logistics centres closely connected with seaports to benefit from revolution of containers moving.

- To make use of emerging modern techniques of logistics that indicate to multimodal carrier which is taking over the transportation processes (door to door), takes care of selection of the appropriate transportation modes which ensure the speed, safety, with less costs, has led to new era of movement goods with high performance and timely delivery with safety.

- The researcher agrees that the shipping industry instigated modern containerization and worked closely with key ports on ensuring that investments in new capital such as cranes to lift containers to and from ships and docks sufficiently.

- Therefore, the researcher recommend that before taking decision regarding such investment study to be prepared to know the capacity of berths to accommodate the stresses and weight of the new cranes and large expenses of nearly space to stage and store the containers, this has to minimize uncertainty and risky averages.

- Reviewing the pricing of containers services and imposed high fines, and applying new strategy to decline costs of services and fines at Yemeni seaports to be equal to neighboring ports or less than, this strategy has to enhance marketing policy and give thrust to Yemeni ports to ensure prospects.
The researcher recommends for supply enough power generators at ports, that has to eliminate shortage and fluctuating power at seaports which curb maximum operation capacity.

The researcher believes that the waiting time and variability of waiting time at ports can be significant. Delays might happen within container waiting for entering the ports as well as during container passing through the terminal gates. Almost 44% of operators serving ports reported that their operations were often affected by congestion at the ports.

In this context, the researcher recommends for effective flow of goods at Yemeni seaports to create the green lane-handling expedition of CATPAT-complaint cargo at broader crossing and port-RFIDE-seals can play an important role in paperless information exchange. Time saving in container processing through the container terminal will influence the improvement of the situation with truck congestions at the port gates; that also will have a green impact on the reducing of port-related truck emissions because of accelerating of truck-turnovertime at the terminals. The improvement of process flows in container networks means that the flow of materials and the flow of information are synchronized when the information system continually displays the current status and stream of goods. The information is thereby not just more accurate but is also up-to-date. E-Seals that are unaffected by weather can improve the process flow for containers at the gates (improvement of the operations at port gates by e. g. remote readability of a container number) as well as refine on the matching of the containers to the manifest; or avoid typical errors made during issuing and receiving goods, such as incorrectly logged quantities.

Construct two additional berths at Hodeida port according to international measurements such as required capacity and convenient depth for accommodating giant containers ships, on the other hand rehabilitation of existing general quays and containers berths at aden port and hodeida port and deepening this berths up to 18 m to be compatible with measurements adopted at the rival ports.

Mobilizing funds for setting up pelvises at main ports in yemen for necessary repairing and maintenance of equipments of ports, in such case, there would not be need for sending equipments to neighboring ports for maintenance, hence, ports could save costs and time.
It is reality that the vital role of the ports is not only that they are entrances for the international trade. Rather, they are places for goods assembling and distributing. Actually, big yards are used in the ports for the storing processes, especially on the public goods berths, where the storing yards occupy about 60% of the port’s area. The storing process forms a big obstacle for the speed and competence of the goods movement inside the port.

Therefore, the researcher recommends mechanism for improving performance of yards through:

- It is important to get information about both the short-term and long-term storage because it helps planning, and knowing the quantity of the goods which need more yards for storing.

- There is an increasing need for more yards to get rid of the congestion which results in low production rate and increases time and expenses.

- Sound replanning of the containers yards and initiating a mechanism for lining up the containers in the yards.

- So there should be lifts which can pile up to 4 or 5 lines maximum, and make use of the yard specified to the containers and get more space for the incoming containers.

- In addition, the empty containers yards should be closer to the handling site to minimize the involved time and expenses while movement.

- Yards are not technically equipped and are exposed to rain which cause damage of goods, so, there should be w sewage for the rainwater to protect goods.

- Adopting strategy based on real plans while granting the investors areas at seaports for investment, haphazardness has to affect adversely flow of goods and services as well as restrict further expansions at seaports.

- The involved time for existing containers at yards should be specific in order to replace incoming containers.

- Dispose the existing imported vehicles off continuously, because it occupies large areas and hamper movement of goods and services.
The researcher recommends some suggestions for upgrading performance of warehouses as following:

- Renewing and repairing the existing warehouses by using good material for avoiding cracks in the future and increasing the estimated life of warehouses, as well as keeping in to consideration making sufficient ventilations while construction.
- The warehouse’s floor should be numbered to facilitate goods transportation and classification according to the ship’s name and the number of the ship’s trip.
- There should be two sections inside the warehouses, one for the goods which need a lift, and the other is only for the cartons which can be lifted by the workers to facilitate the logistic process of the goods flow from the depot smoothly.
- Enough number of fire extinguisher as a precaution.
- The warehouses should be near to handling site to minimize time and costs and accelerating the goods flow into the warehouses, in addition, providing adequate equipments to reduce consumed time during discharging of goods.

The researcher believes that there is an urgent need in the ports for using the information and telecommunication technology (ITC) to ensure getting precise information in the right time. The use of ITC facilitates the commercial activities to a large extent by saving time, and decreasing the expenses and the human faults. It is possible to make use of ITC in all the stages of the ports operation.

In the ships movement administration; the use of complete ITC with radar system and the automatic identity identification makes it possible follow the ships movement and ensure the ships safety along the way to the ports and in the ports’ entrances and moorings.

Therefore, adopting information technology applications at Yemeni seaports is very vital, especially, electronic data interchange for accelerating hauling and handling process and accompanied operations for saving time and costs and improving the performance at seaports.
Air transportation & its infrastructure

The researcher recommend for upgrading air transportation in Yemen through the following strategies:

- Reinforcement the institutional capacity and operational budget of ministry of transportation (MOT) so it can be able to perform its mission for upgrading air transport sector effectively, and clarification its role in this respect, on the other hand specification responsibilities of Civil Aviation and Meteorology Authority (CAMA) for making compatibility between (MOT) and (CAMA) for avoiding delineation.

- Adequate, accurate, reliable data should be available on every aspect of the sector, such as data related to traffic and finance, this will support any in-depth analysis of the sector and its development needs.

- Adopting new financial policy for pointing out The current financial situation of the sector based on sound database of information clarify the overall use of funds.

- Issuing explicit tariff policy aims at cost recovery and making the sector financially self-sufficient.

- Sources and revenues should be discussed under authority of (MOT).

- Revise the current strategy of (Yemenia) air line including its profitability, cash flow, its commitments, its management, as Yemenia has large sums of unpaid, airport fees, Yemen oil company and insurance company which may in fact represent an indirect financial burdens to the airline’s recent losses.

- Increasing Yemenia capital to finance required investments and to absorb past losses, this strategy should be taken with every precaution as it is very risky because of high degree of competition by regional airlines and limited capacity of Yemenia carrier and possible votability of some the targeted markets.

- Replacement of some of existing aeroplanes with the purchase of new airbas A350 as capacity of old ones became very poor, this procedure has to develop its fleet and reinforce the competition on long-haul network.

- As Yemenia carrier has given the operation rights for local flights to Alsaeeda airlines considering that Alsaeeda carrier (Felix) possesses the majority of shares
(75%) while Yemenia invested only with (25%). In such situation, shareholder of Alsaeeda can easily lay claim to the exclusiveness to operate domestically and prevent other potential operators from receiving domestic traffic rights.

As result Yemenia would be largely in need for searching about new regional routs to reoperate its domestic carriers after (Felix) dominates domestic flights.

Therefore, review competition policy on domestic market is necessarily required to allow participating of new air carriers. The move towards a liberalized air transport should go on. Felix, therefore, should not have exclusive domestic traffic rights.

Adopting overall strategy for infrastructure development in the air transport sector through:

- Concentration on rehabilitation and renew three main airports (Sanaa, Aden, and Hodeida airports) with precise plan and support them with required funds will add high value to Yemeni airports to cope with latest technology in order to achieve optimality.

- Review the existing evaluation of future passenger traffic as it is not well grounded.

- Supporting the main airports with modern techniques and equipments in respect of moving luggage's and goods as well as modern equipments related to discharge & charging such as: enwrapping, belting and refrigerating goods.

- Priority for construction the necessary infrastructure (such as: hotels, restaurants and entertainments) at international airports.

- If the need arises for construction new airport, the feasibility and viability measurements should be taken in to consideration before starting executing the project.

- The runway needs to be increased of 548 meters, and any increase more than that does not give any add-on total weight of the aircraft while take off and will be an economically unfeasible and this add-on would give the following characteristics to runway:

  (i) Greater flexibility in the movement of aircraft.

  (ii) Give the maximum efficiency of the runway to the possibility of use it by
all types of aircraft.

(iii) Increase the factor of safety in takeoffs and landings of aircraft.

(iv) Raising the overall cargo rate of the aircraft at take-off.

➕ Assess infrastructure needs and financial requirements for development based on realistic passenger and cargo forecasts and economic criteria.
➕ Avoid to subsidize unprofitable airports by revenues of air traffic system (ATC).
➕ Transparency in respect of airports fees and (ATC) charges.
➕ For achieving target self-financing for air transport infrastructure, the sector should generate enough revenues to finance its own infrastructure and other capital needs through setting tariff, fees and taxes in the sector, particularly, increasing tariff of domestic flights as it is very low.
➕ Several airports with low traffic have been recently equipped with costly (VHF) Omni-directional radio range & Distance measuring equipment (VOR/ DME) installation, while cheaper alternative technologies might have provided with the same service such as: global positioning system (GPS).
➕ Adopting modernization and information technology at overall operational and managerial processes at various ports.

**Scope of further study:**

In view of the ever-increasing needs of transportation, it is of adequate necessity to inquire on the efficacy and efficiency of the available transport modes in Yemen.

Numerous concerned parties such as government of Yemen and other governments, investors, ship-owners, captains/pilots, travelers, academic institutions, students and teachers, public, donors like the World Bank are all interested in the publication of this research, which imparts in-depth knowledge and awareness about the status of transport systems in Yemen.

On a personal basis, I would like to learn thoroughly the literature behind transportation systems aspect related with road, marine transport and air transport and use it prudently for academic purpose and promotion of decision making.
5.3. **Conclusion:**

Globalization of the world economy has led to major changes in goods movement and global commerce as the international commercial system has witnessed a numerous developments and many changes have been accessed to this system and changed the rules managing international commerce activities.

Hence, the need arose for effective transportation systems to accommodate such developments and facilitate efficient flows of goods and services.

However, Sound transportation system plays major role in respect of facilitation of the human communication, social connection, increasing trading exchanges, enhancing human relations and internationalizing economy and major incorporations and participations within economy liberalization, competition, launching free market activities, curbing monopolizing, removing barriers and restrictions and activating huge economic gatherings as no place for minor gatherings, this pushes a further interlocking and exchange dependence. Further, it pushes consuming and production patterns benefiting human interests within specialization and labor division.

In the last two decades, there comes a trend called for a comprehensive introduction of transportation, storing and distrusting of goods in order to reduce cost and improve quality and performance level and consequently increasing the profitability. This trend is known with logistics. This trend aims to provide correct things with correct quantities at the correct place with reasonable cost.

There is an intimate relation between transportation and logistics, they are going together and they can not be separated, flows of goods and services from original point to the consumption point requires effective transportation modes, moreover, transportation constitutes two third costs of logistics, on the other hand logistic management have to minimize the costs, time and improve the performance.

Upgrading transportation systems involve definition obstacles that hamper effective performance and come with real treatments.

In this context, Yemen has been through some difficult times and is emerging from a period of tribal conflict, exogenous shocks to its economy, and a
damaging civil war. This backdrop does not make for an easy transition to upgrade transportation system.

As direct consequence of such degradable situation, Yemen compares unfavorably with its Middle Eastern neighbors in terms of transportation infrastructure and communication network, Roads are generally poor although several projects are planned to upgrade the system, there is no rail network, Efforts to upgrade airports facilities have languished, Performance of the sea ports are unsatisfactory in spite of Yemen strategically and geographically located on Bab Almandeb, the strait linking the Red sea and Gulf of Aden may making it one of the World's most active shipping lanes. Hence, the researcher devoted to investigate the exact reasons which hampered the transportation system in Yemen and reflects of current status of transportation on the economy of Yemen.

Through this study, the researcher strived to highlight status of transportation in Yemen from ancient era up to present time, consequently, the researcher has illustrated the different types of transportation (land, marine, and air), their developments and its impact on their performance, on the other hand, history of roads, seaports, and airports, their developments and impact of developments on their operations has been clarified critically, the researcher as well as pointed out impact of transportation currently on Yemen economy. as the transportation policy and logistic management is the principal concern of the research, the researcher has mentioned transportation policies in Yemen and evaluation of these policies building on performance of transport sector, on the other hand importance of logistic management and its interfacing with transportation systems for upgrading the system has been explained sufficiently.

The main objectives of this study to ascertain proper maintenance and management of roads, seaports and airports can boost the economy of Yemen, on the other hand to identify the problems which hamper performance of different transport systems in Yemen, as well as to study efficacy of policies taken on roads, marine, and air transportation in Yemen.

From perspective of the researcher, transportation sector in Yemen suffers from two main inhibiting factors led to vulnerability of this sector and curbed its contribution to economic developments, these factors are:
Chapter 5: Findings, Recommendations & Conclusion

- Poor logistic management,
- Weak transportation policy.

The researcher has made descriptive analysis of 350 respondents (targeted sample of study was categorized into two main categories namely beneficiaries, decision and policy makers), and 120 questions, these questions included obstacles and prospects of transport systems in Yemen related to management, policy and capacity of roads, dry ports, seaports and airports, initially these questions aimed to confirm reliability of determined hypothesis.

The reliable and good quality of data was very necessary for accomplishing this study, therefore, every precaution and accuracy were adopted to obtain relevant information precisely.

Observation was registered as well as interviews were conducted with officers and managerial personnel closely to land, marine and air transportation for obtaining the required information and statistical data.

A total of 160 officers, managers and closely to transportation field and total of 160 beneficiaries (businessmen, consumers) were participating with this study through their responses about the questionnaire and survey conducted by the researcher.

Some other data has been collected through secondary resources included books, websites and research papers.

This study presented results of current status of transportation systems in Yemen, as well as results related to inefficient transportation policy and management, these results are grounded by survey and statistical analysis of data.

On light of these results, the study came up with real treatments that may could to upgrade the transportation system in Yemen and to achieve the optimality.
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