**Case Study: Building Capacity**

A company produces juice and sells to consumer market in Bangladesh. It produces three different types of juice: Mango, Orange and Papaya. **The company runs 8 hour in each day and 240 days in a year**. Currently, company has **five machines** that process the fruits and convert to juice. Each machine can produce any types of juices. Due to negative compliance issue of a competitor, marketing department forecasted potential increase of sale to a significant amount.

The standard processing time and forecast for each pack of each type are given below.

|  |  |  |  |
| --- | --- | --- | --- |
| Types | Mango | Orange | Papaya |
| Standard processing time | 3 min | 4 min | 3 min |
| Forecasting for year 2024 (packs) | 1,40,000 | 1,20,000 | 80,000 |

1. Based on the information determine **how many extra machines company need to acquire** for next year to fulfill the forecasted market demand
2. At present the overall **efficiency is 80%.** Having an investment of 20 Lakh BDT the **efficiency can increase by 10%.** Based on new efficiency **how many extra machines company** need to purchase to fulfill the forecasted market demand
3. Right now company **purchase the paper package for the juice from a supplier**. One of the executives suggested a business proposal of prod ucing the packages inhouse. It will cost purchasing new equipment having annual **bank interest of 5,000 BDT per month and hiring staff having fixed salary of 20,000 BDT per month**. **The material, energy and other operating cost would be 2 Tk per pack for the juice**. Currently, company pays **5 BDT for each pack of juices**. Based on the available information **should the company decide to buy from supplier for the next year or proceed with the executives business proposal (i.e. procuring in-house of the packages)**