

## ABSTRACT

Infrastructure is currently growing significantly. Concrete material is one of the materials used in construction development projects in Indonesia. Concrete material is chosen as the main construction material because it has advantages in terms of strength, durability, relative cheapness, ease of production and workmanship. PT XYZ is one of the companies engaged in the concrete manufacturing industry sector. There are several projects and concrete products produced to support infrastructure development in Indonesia including PC Poles, PC Piles, Railway Concrete Products, Sheet Piles and others.

The production activity of making concrete at PT XYZ is high, thus affecting the inventory of constituent materials needed in making concrete. There are three groups of constituent materials in the concrete production process, namely basic materials, spare parts and supporting materials. The problem faced by PT XYZ at this time, especially in the warehouse area, is the accumulation of basic materials (overstock). This is characterized by a large gap between the amount of inventory of basic materials and materials used, where the amount of basic material inventory is greater than the amount of basic material demand. In addition, inventory conditions that experience overstock can be seen from the level of inventory that exceeds the tolerance limit set by the company. The company's inventory level has a tolerance limit for all constituent materials of 10 % above material demand.

The problem-solving method used in this research is ABC Analysis to determine the classification of each material and the newsvendor model method to determine the amount of material inventory with a minimum total inventory cost so as to reduce the level of overstock. Based on calculations using ABC analysis, material classification is obtained based on three categories, namely category A which consists of one type of material, PC Bar 7,1 mm, category B consists of two types of material, PC Wire 7 mm and kawat spiral 4 mm, category C consists of four types of material, Besi polos 6 mm, Besi polos 8 mm, Besi ulir 10 mm dan Besi ulir 13 mm. The next calculation is to use the newsvendor

model in determining the amount of material inventory with a minimum total inventory cost, obtained a decrease in total inventory costs by 10.8% or Rp 3,653,219,080 and the amount of inventory has decreased by 20.4%.

Keyword: *Overstock, material inventory, newsvendor model, ABC analysis.*