

**Rahadian Ramadhan**, Department of Industrial Engineering, Faculty of Engineering, University of Brawijaya, August 2014, *Analysis Of Workload With Work Sampling And NASA-TLX To Determine The Number of Operators Supervisors* : Ishardita Pambudi Tama and Remba Yanuar Efranto.

Industri Sandang Nusantara (PT. ISN) is a factory which focus on the fabric fields. As one of the State-owned enterprises (SOEs) PT. ISN is responsible to fulfill the needs of fabrics in Indonesia. One of the factory is Patal Lawang Unit. Patal Lawang is a branch which is producing polyester yarn with reliable and superior quality. The employees often feel exhausting and fatigue. One of the problem is the unbalanced in comparison to the number of machines available. The employees often said that they felt fatigue and exhausting because they had to operate some machines in same time beyond their capacity. Increasing the number of permanent employees is conducted to minimize the workload of each machine operator to reduce the fatigue.

In this research, the method to determine the number of operator is analyzing the physical workload and mental workload. The physical workload measurements is measured by using Workload Analysis (WLA). WLA is a method that conduct to determine the level of work efficiency based on the total percentage of the workload given to finish the job. The mental workload measurement is measured by using NASA-TLX. NASA TLX is the multidimensional rate which examine the whole workload based on the average weight from 6 rates subscale. It consist of *Mental Demand, Physical Demand, Temporal Demand, Own Performance, Effort And Frustration*. Both result of this method will be analyzed. Then it will be used as consideration to determine the number of employees.

This study generated the amount of operator's addition to Ring-Spinning machine. According to the measurement by using the Workload Analysis, the physical workload percentage with 5 operators is 112,8%. After adding one operator only the percentage become 94,56%. The NASA-TLX score with 5 operators is 71,4. According to the NASA-TLX measurement which is score above 60 the additional operator will be needed. The additional operator according to NASA-TLX should be one operator.

Keyword: Ergonomi, Work Sampling, Workload Analysis, NASA-TLX