

OM201/International Programs

Exercise on Productivity

Item 1. TU Dome restaurant has 12 staffs as shown on the table:

Position	Number	Daily Wage (THB)
Chef	2	1000
Chef assistant	4	500
Waiter/Waitress	3	350
Dish cleaner	3	300

In average, they provide meals and drinks to 100 tables of customers and generate approximate 20,000 THB per day. The restaurant has to pay 1,500 THB to Thammasat University for daily rent of 15 square meters. It uses electricity at 100 kilowatt-hours per day and the electricity charge is about 3 THB per kilowatt-hour. Its overhead cost is about 500 THB per day.

- 1.1 What is the labor productivity of the chef?**

- 1.2 What is the labor productivity of this restaurant?**

- 1.3 What is the area productivity?**

- 1.4 What is the electricity power productivity?**

- 1.5 What is the multi-factor productivity of this restaurant?**

- 1.6** A sale engineer proposes an offer of a new dish washing machine in a low price of 20,000 THB. This machine can operate by one operator and can reduce two dish cleaners. This machine will consume 30 kilowatt-hours per day.

Should the restaurant manager invest in the dish washing machine? And why?

- 1.7** If the restaurant manager decides to invest, how long does it take to the break-even point?

Item 2. TU Water company would like to expand its production capacity from 5,000 dozens to 10,000 dozens per day. The factory manager proposes 4 scenarios to the board of director to consider as follows:

Scenario 1	Recruit additional 50 workers and let all workers do overtime 4 hours per day.
Scenario 2	Recruit additional 100 workers to work at night shift.
Scenario 3	Install a semi-automated production line and terminate employment of 20 workers.
Scenario 4	Install a fully-automated production line and terminate employment of 70 workers

Additional information:

- (1) The factory has employed 100 workers since last year.
- (2) The worker works 8 hours/shift and gets 300 THB each day.
- (3) The overtime charge is paid by hour at 1.5 time of the normal wage ($1.5 \times 300 / 8 = 56.25$ THB per hour) and the maximum overtime is 4 hours per day.
- (4) The worker at night shift will get additional 100 THB for transportation each day.
- (5) The investment for semi-automated production line is about 200,000 THB. A new technician is needed to operate the machines. The salary of a technician is 15,000 THB. The factory operates about 25 days per month.
- (6) The investment for fully-automated production line is about 1,000,000 THB. A new engineer and a technician are needed to operate the machines. The salary for these two staff are 30,000 THB and 15,000 THB, respectively. The factory operates about 25 days per month.

What scenario should be selected by the board of directors? And why?