

## A SYSTEM DYNAMICS MODEL OF A PUBLIC SECTOR IN INDIA

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### Abstract

In this paper a system dynamics model of working of a public sector in India is presented and its behaviour has been analysed. The public sector in India are suffering from low productivity, overstaffing and excess capacity. The quality of managerial input, selection process and compensation offered and flexibility in decision making are some of the major cause of under performance. The state owned enterprises have often not to compete with private sectors and the growth in market share is not so emphasised.

Apart from this the motivational cycle of the employee working in public sector undertaking is not well pronounced. The socialistic norms of control, which substantially affects the security need over a need pattern of the employee, which is essentially the need pattern closely correlated with free enterprise systems. The situation of conflict arises in case of a stateowned company working under a mixed economy systems as obtained in India. This causes low productivity.

The paper concludes that each unit should be treated as a separate autonomous body, with flexibility in decision making, better managerial talents have to be attracted. The level of competition should be well pronounced if at all productivity has to be improved. Productivity awareness has to come from the top political circle of the Government and productivity should be treated as national gain.

## Introduction

The Government run enterprises in India are required to complete annual production plan assigned by the concerned administrative departments. They do not face stiff market competition to earn profits. Therefore, the pressure to produce more is negligible as most of the product is bought by the government itself.

The company under question is a Diesel Locomotive manufacturing company called Diesel Locomotive Works, D.L.W. situated in Uttar Pradesh, India. The company gets its annual production plan from the railway board and has to face no serious competition in the local market. The company has excess production capacity, high cost of manufacturing, very low productivity and profit. This paper attempts to explain with the help of system dynamics model the causes of low productivity (Sharma, 1982) in the Public Sector undertaking (Sumanth, 1985) has given a number of factors that affect productivity.

## Causes of Low Productivity in the Indian Public Sector

The input resources can be classified as Technological, Human material, Managerial resources. These input factors are utilised in a productive system through a process of interaction to give a defined output.

Leaving aside such general discussions as are known to affect productivity in any sector be it public or private, we shall concentrate more on such aspects which are of particular relevance to Indian Public Sector. Thus technological factors, good quality material resources are not distinctive to public sector in any peculiar way, in fact public sectors have better inputs in terms of equipment knowhow, materials etc. as compared to private sector. It is the management of human resources and quality of management resources which holds the key to productivity in the public sector.

The top level management that now manages the country public sector is not the best available in the country. The reason for the inadequacy at the top are not far to seek. The biggest limiting factor is the remuneration paid to top executives of a state owned company, not forgetting that his counterparts within the same nation are drawing two to three times of the compensation (Laxmi Narayan, 1973). The better managerial and technical talents are lost to private sectors.

No less responsible for the inadequacy at the top is the process of selection and selection norms pursued by the power

that matters, seniorities, unrealistically long experience qualifications that may not be relevant preference for executive already working in the Government are some such impediments. In addition to this many extraneous constraints operate which reduce the liberty of the management to manage. Mention here may be made of the pressure exerted by the unions controlled by the Government of the day, populist measures taken by the Government in power, audit norms, material procurement and reservations even in the senior positions, which impede productivity (Sharma, 1985).

### Human Resources Management

There are no two opinions about this fact that human resources utilization of public sector is very poor. The workers are not willing to work and the middle level managers have no support from the top to face the situation. The top management is unwilling and indecisive to set the house in order. This creates a funny type of laissez faire where every employee is possibly free to decide how much he should do in his allotted eight hours, every middle level manager has to figure out what not to say to displease an employee and the top management is free to guess as to what will be the output at the end of year. Now why is this so? The key to human effort is his motivation and why does the motivation of various sections of the employees in the public sector develop the way it does. If we can understand this, certainly we shall be able to unfold a basis on which to build up a model for increasing efficiency of human resource utilisation.

According to (Maslow, 1954) every human being has five broad categories of needs, physiological, security, social, psychological and self actualization (creative). These needs in the inverse proportion of their satisfaction will create the urge in a human being. The behaviour (response to given set of stimuli) will however be a more complex phenomenon substantially influenced by the perceived rewards and the probability of those perceived rewards (Porter et al., 1968) and by many such factors as personality, acquired habits, informed ground influence etc. As a part of free enterprise society governed by the competition and free trade a person has always to strive to satisfy his needs. The physiological need may be satisfied and so also the social needs, if a person happens to be reasonably successful in life but security needs are seldom satisfied. As a consequence security need is one of the predominating influences working on the motivational pattern of such an individual. Thus the behavioural pattern generated on account of greater keenness for ego need satisfaction and/or psychological need satisfaction will always be kept in check by the security need predominance.

Thus there is always a balancing action between the perceived rewards and the perceived losses. Contrary to this in the public sector the security needs are fully satisfied, in fact in our opinion, it is overfed with satisfaction which is worse than under-satisfaction. It is the ego needs which takes predominance and as no check is exercised by the security needs, the ego needs create unbridled urge and depending upon personality of the employee may appear in the form of highly erratic behaviour. The balancing is no more because there are no perceived losses, if at all there is any thing it is the perceived gains.

### The Structure of the Model

The causal loop diagram of the model has been divided into two distinct parts. The first part is called the production loop (Lei et al., 1989) and the second part is called motivational loop. Fig. 1 shows the major production feedback loops of the model. The loops 1 and 2 are the positive feedback loops which should encourage the growth of profit, market share etc. However, since the level of competition is almost negligible there is no pressure to increase the market share. Loop 2 shows that as investments increase, more equipment are added to increase production capacity and thereby increasing the production rate. Loops 3, 4 and 5 are the major negative feedback loops. Loop 3 shows that as equipment quantity increases variable and fixed expenses on energy, wages and depreciation increases thereby reducing profit. Similarly loop 4 shows that as delivery delay increases market share reduces and orders are reduced and this loop also lies in almost inactive state as delivery delay has very less impact on market share in case of Government controlled company.

The second part of the model deals with the motivational aspect of the people working in public sector as shown in Fig. 2. Loop 6 is a negative feedback loop deals with the common motivational process of human being. It is pointed out here that ego needs which is predominant and dictates the motivational process. Ego need as well as other needs are controlled by the level of security needs, as security needs gets more satisfied, ego needs becomes more predominant. The security need depends upon level of competition as well as on the outcomes of erratic behaviour. The predominance of ego need if not satisfied leads to erratic behaviour as shown in loop 7, erratic behaviour leads to more union activity, to more demand and to more concessions, these concessions reduced the positive rewards and enforces erratic behaviour. This makes the motivational process of loop 5 more obscure. The more

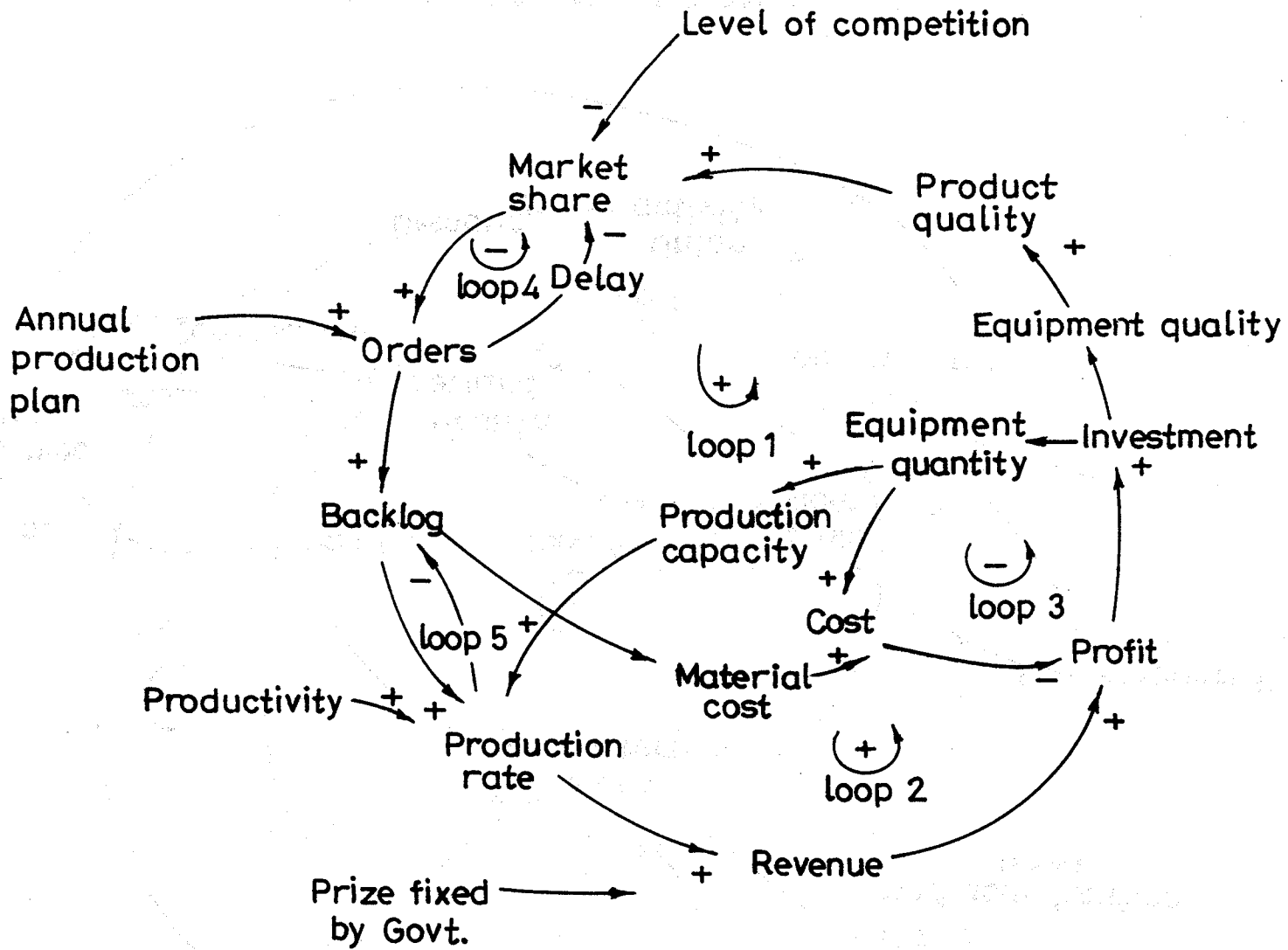


FIG.1. THE PRODUCTION LOOP

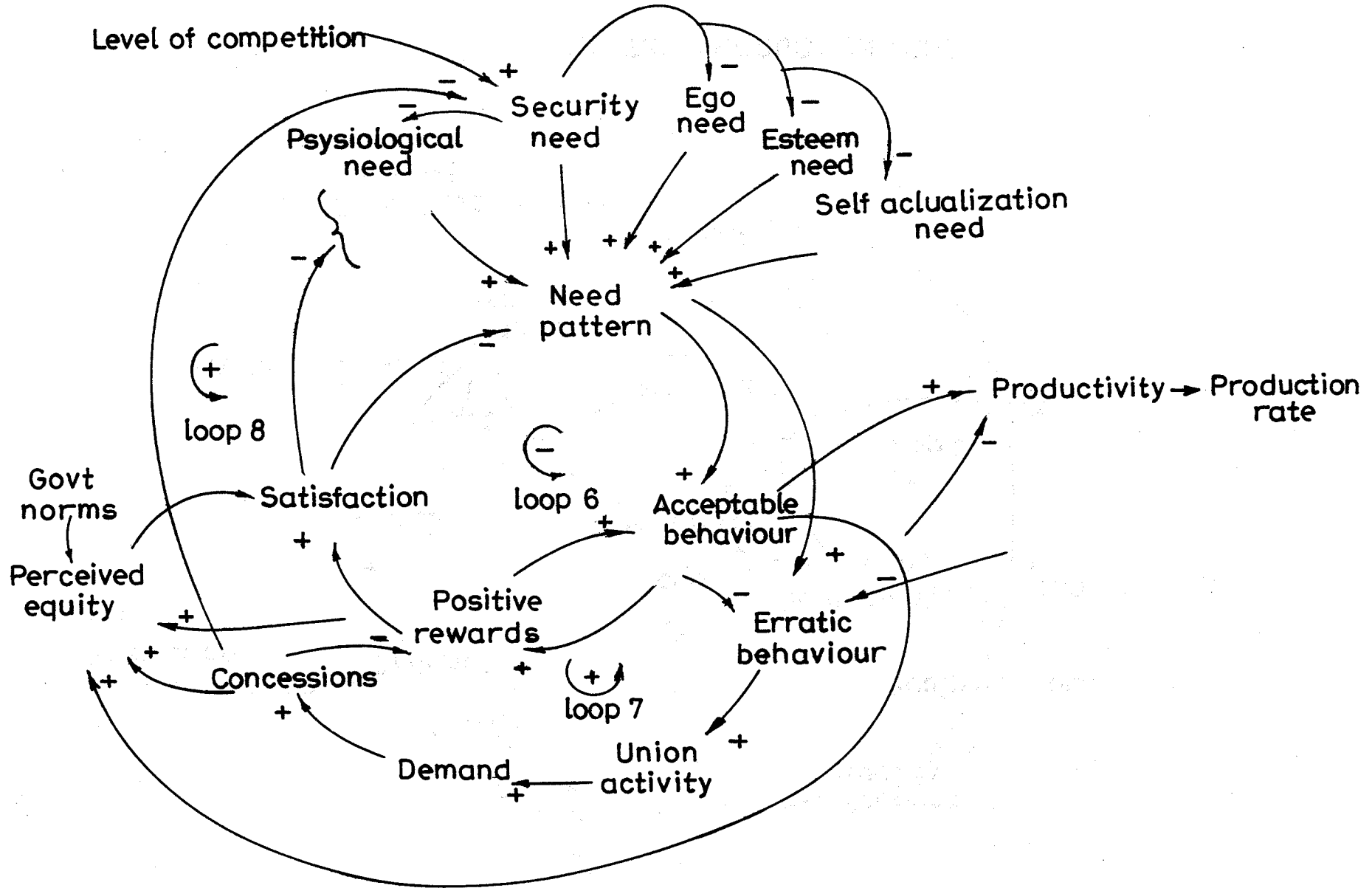


FIG.2. THE MOTIVATIONAL LOOP

concession further reduces the security need and therefore, increases the ego needs (ego needs remains unsatisfied as promotions difficult to obtain), the increase in ego needs leads to more erratic behaviour. The perceived equity is a function of acceptable behaviour and positive rewards which in turn affect the satisfaction, but perceived equity is affected by the government norms of giving inadequate and delayed benefits for the efforts put in by the workers. The productivity is affected by erratic and acceptable behaviour, the productivity also affects.

### Analysis and Discussions

The initial analysis of the model tells us that, because of socialistic norms of control (which substantially affects only the security and self actualization needs) over a need pattern of the employee, which is essentially the need pattern closely correlated with free enterprise economy. The expectations of the employees are great. Whereas in a socialistic economy there are no great pressure for need fulfilment as there are no major expectations. The perceived rewards are less pronounced and so the question of perceived losses does not arise. The situation of conflict arises in case of a state-owned company working in a mixed economy. Such a state of motivational conflict demands much more from the executives in terms of on and off job leadership than possibly would be required in a private company. Not only has the executive to rely on his formal authority (which in any case in a public sector is very low compared to private sector) but even more has to have the strong leadership ability and training so that the motivational pattern of his superordinates under his influence remains a balanced one and needs (especially ego needs) and urges do not go out of control for want of sufficient check. Also the management philosophy is to be so oriented that necessity of striving to earn and its consequent reinforcement through a perceived reward and fulfilment cycle does not get obscured. What is happening at present is that perceived reward is obtained more through union negotiations and collective bargaining than having earned as a result of meritorious performance. Thus an average employee perceives the union as the God-father and the management as the common enemy to be fought with to attain more satisfaction of needs.

Much of what we have said above applies substantially to the top management of the public sector. The survival of the management is also seldom at stake even if the productivity has not been high enough to generate profits. Some logical explanation can be found as to why the productivity is low,

the unit will continue to get its finances from government (to which the latter is obliged to keep up its socialistic image and social commitments). But it is not forced to face the open market forces operating in a free state economy e.g., that if the revenues are less than expenditure units viability is lost and it may have to close down affecting all the section of the employee whether at the top management level or a blue collar worker. So the management in the public sector can manage to shy away from problems rather than coming to grips with them.

### Recommendations

First productivity awareness has to dawn at top bureaucratic and political level. Productivity has to be regarded as national goal and all impediments to attaining productivity have to be removed on a war footing. A strongly motivated professional cadre of managerial and technical executives has to be created and attracted to run each public sector unit as a distinct profit centre. All necessary authority, back up support the flexibility have to be offered to make the management autonomous. Only capable professionals willing to shoulder responsibility have to find higher berths. Tough minded management philosophy has to be pursued and any irresponsible behaviour detrimental to productivity has to be condemned for any reasons what so ever, only enlightened Trade Unionism has to be encouraged within the guidelines of the legal frame work. Labour courts have to be highly efficient. We end our discussion here having highlight to the issues leaving it to imagination of our participants as to how this complex problem of productivity can be tackled.

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