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THE INSTITUTION OF ENGINERS, PAKISTAN

23rd ANNUAL CONVENTION

PROCEEDINGS

Volume – IV (SYMPOSIUM)
SELF-RELIANCE AND DEVELOPMENT OF LOAL RESOURCES

LAHORE
MARCH - 1980

PAPER NO. SYM/80/1

SOME THOUGHTS ON SELF RELIANCE AND MISSING LINKS

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What do we mean by self-reliance? Does it mean the possession of sufficient funds to purchase what is required, if this is so OPEC countries should have no problems of self-reliance. Does it mean having technologically competent manpower, if this is so Pakistan should have no problems of self reliance because our qualified personnel are so very much productive away from home (without additional education or training) in the face of international competition. Does it mean having a large supply of minerals of various kinds, if this is so Zaire should have no problems of self reliance. Why Is Japan self reliant while being fully dependent, amongst others, on petroleum and iron ore/steel scrap imports and only lately it was reported that Japan was considering importing 17 million tons f grain from the USA. Why is West Germany self reliant despite its dependence on imported petroleum and other raw materials? And it is interesting to note that inspite of wholesale physical destructions in Germany and Japan in World War II they have come out on top in many ways, all in our generation. Those who may have visited those two countries during the ten years immediately after the conclusion of World War II and then from 1970 onwards cannot be but struck by their magnificent achievements.

It is no exaggeration to say that problems of generating self reliance cannot be looked upon as being simple much as we would like to. Have we not seen that while dexterous Pakistanis can hand tailor almost anything, say a jeep or an average electronic system but when it comes to manufacture in large numbers we are hardly successful. Then again look at our technically proficient individuals who fit into someone else's organizational strategy in an extremely productive way, but not at home.

PRINCIPLES

It is interesting to note the President enunciated principles to be applied to our technological efforts during the recent visit of Dr. A. Salam, Nobel Laureate, stating that

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the "four principles governing science, technology and engineering policies of the Pakistan Government.

1. Scientific, technological and engineering knowledge both basic and applied – will be strengthened, acquisitioned and used for Pakistan's development at all levels. The resources of manpower and funding will accord with international norms. Pakistan's scientific and technological communities will not feel isolated from their international counterparts.
2. The decision-making process for development will have input from the local scientific and technological communities, at all levels and stages of discussion, advice and implementation.
3. Research & Development efforts will be located with universities, industry of government laboratories, wherever it can make the maximum impact on the country's development.
4. Science and technology policy will endevour to make the nation as a whole conscious of scientific and technological advances pertaining to the country's development.

From the above it is possible to work backwards and construct the policy, from which the four principles can be derived, as being "To deliberately promote the growth and utilization of science and technology as a means towards achieving, through self-reliance, the socio-economic well-being and security of the country". In addition, the President laid down prioritywise the following areas that need to be attacked in this decade.

1. Agriculture (including water and allied resources)
2. Energy and Minerals exploitation
3. Science-based industry
4. Population policies

Generally, it is accepted that our difficulties have been in the implementation of policies rather than in their enunciation. In any case, we must give full credit to the President for his forth-right utterance as indicated above. The problems is how can the expressed intentions be converted into practical reality i.e. how can results be obtained?

If results hve not been obtained in the past, despite pious intentions, it is necessary to determine the causes for such failures. The argue that some phenomena transcend precise

measurement, while it may be true, is surely no substitute for neglecting the painstaking donkey work of carefully analyzing what can be measured.

Surely we can hardly take shelter behind the argument that matters will right themselves automatically, that smacks of the ancient dictum of masterly non-intervention. There are so many failures that it can hardly be said they are exceptions in a general pattern of success.

LINKS

The strength of a chain is dependent on its weakest link, no more no less, what can be said about the Economic, Social, Political, Labour and Management Links of the equation? At the outset let it be made very clear that whether a system is communistic, capitalistic, socialistic, democratic … or Islamic, that self reliance – involving human beings – can only be obtained through what is called |"the organization" and the principles to run organization efficiently are common to any political base. Those who may have read of communistic Stalin's view in the 30s on productivity would not find his expression very different from that of a capitalistic tyconn! This is not to say the political colour isn't important, it is, but those who insist ad nauseam that it is the only link in he chain that can do the trick do little service to the nation.

It is so very easy to take in turn the other links i.e. the Economic, Social, Labour and Management (usually as the noun) aspects of organized endeavour and to dilate on their individual importance. May be it is necessary to look elsewhere, possibly at management (as the verb), this might get us somewhere. Possession of money or raw materials is not the answer to all our problems, "reprocessing" or micro-miniaturization are significant examples. It is so easy to blame someone else of economic exploitation of the weak. The point is how does it come about? True, those who are ahead wish to stay ahead and do what they can to remain ahead, but how have they moved ahead? Should we not make the necessary effort to find out? After all, all professions are prepared to accept new developments. Why it is difficult for management (the verb) to adopt new concepts fo new problems arising paradoxically out of performing the same old activities over the year **but in either a greatly enlarged or greatly intensified form** must be understood clearly.

ASSESSMENT

It is not without good reason that in 1975 Richard Burt writing in the Christian Science Monitor of India's research and development effort concerning defence said while admitting impressive progress added

> "the main obstacle to . . . acquisition of an advanced 'black box' capability is . . . the ability to manufacture (this) equipment in large numbers".

or that the late Sarabhai in his Foundation Day Lectures at the Administrative College of India in December 1969 quoted from the US Panel on Technology assessment in regard, to internal and external evaluations that:

> "Implicit in much of this report has been the distinction between internalized assessment (ie assessment built into the incentive structure, the decision-making process in question) and externalized assessment (ie assessment conducted by an institution deliberately separated from the front-line decision-maker). There has been general agreement in the panel that internalized assessment whenever it can be applied, is far preferable essentially because self regulating close-loop systems are best able to adjust to net variations within the system itself. Externalized assessment separates authority from responsibility tends to re-define responsibility without separating it from authority (and further). However self-regulating systems may be insensitive to externalities and may have to be substituted by externalized open-loop systems. Thus although there are advantages in being on the scene, proximity and commitment tend to generate blind spots. In sum, any scheme devised for improving the assessment and m management of technological change should make maximum possible use of the internal decision-making process and should proceed by making these processes more sensitive rather than by imposing external constraints, but it should recognize the necessity for some external assessment and supervision to make the system function properly, ideally, the effort should be made to modify goals and criteria of success without dictating the means of achieving them".

It is necessary – as positively stated by no less than the President himself to have indigenous inputs at all levels, at the planning, the execution and the control phases to

ensure all round progress. This must be recognition of the fact that any group or class (links in the chain) if permanently dissociated from the exercise of power is ultimately relegated to a position of both social and political inferiority. Most surely the method of arriving at decisions must affect their content accordingly. In very few words the US Panel has said a lot. Adopting the approach indicted in their assessment is the only and the correct way to help release the creative energies of our technologically competent individuals. This is what self-reliance means.

A society's technology is related to its power structure. Let us look at the Let us look at the Indus Basin Treaty, (it really was the same for India as was for Pakistan!) What happened under Nehru in its implementation across the border and what happened out here? There was acceptance in India by its power structure of the concept or strategy that self-reliance had to be put into practice quickly, and when one wants to move quicker and quicker the more strategy must count. What is the use of winning a tactical skirmish here or there only to find out our plans have not only a weak, but a missing link, in that there are no means for the assessment of the administrative capability required organizationwise in the two links of execution and control in the effort to achieve results in our various sectors of society. Please do not forget our technological competence is not in question, our people do very well abroad. As if these aspects can grow up undirected of themselves by themselves. If we do not pay attention to these factors it doesn't mean to say hat we cannot have growth. Did we not have it in the 60s? But at what cost-capital formation through tax evasion being accepted as a good thing. Morality took second place and laughed last! At least let us learn a lesson from such an unsuccessful strategy (though tactically successful according to foreign consultants) of the 60s. How is it possible to compel performance.

PERFORMANCE

Since the speed of the non-productive activities governs the speed of productive work, how can the deleterious effects of the non-productive aspects be reduced? It requires sound procedures, sound and well developed evaluation, sound and reliable reporting, sound and good management development programmes and an organization structure that helps permit moving in the direction of facilitating work flow rather than providing all

the hindrances which appear with nagging frequency. Should we not insist on this since it helps positively in generating self-reliance?

It is out of such realization that the proper approach will dawn forming links in the chain of effectiveness: that there is no such thing as a technological gap; it is a managerial gap, this was first said by McNamara at Millsap's College, Jackson (Miss) in Feb. 1967, even though his thoughts were in regard to the gap between highly industrialized European countries and the USA. The Europeans, at hat time, were afraid that a kind of technological colonialism was threatening them, the brain drain to the USA represented an effect not of merely advanced technology but the cause, which without question was much more effective administration or management of organizations. Such thoughts can also be applied, albeit at a lower level of sophistication, to the underdeveloped world – with money but inadequately qualified manpower or with little money and plenty of manpower all sorts.

TECHNOLOGY AND CHANGE

Another realization that must crystallize in our minds is that modern advances are firmly based on multi-disciplinary collaboration which has produced a vast array of new organizational tools including amongst others, operations, research, cybernetics, information theory, decision theory, systems and procedures, electronic data processing and autonomics. Logical to this realization is that we move in the direction of self-reliance by introducing flexibility in our method, but using as sheet anchor the scientific, empirical or inductive method, which was first popularized by Islam in a big way 12 centuries ago. Since it is the man behind the pen that ultimately matters, greater attention must be paid to him in recruitment, in training, in evaluating, in merit rating and in performance appraisal as also in updating his obsolescent knowledge... new methods of training are required to provide the missing link – the bridge between practice and theory (not, presently, the other way around!) and then to strengthen this and then to continuously maintain it. Just as a machine requires maintenance so does the human brain if only because of the shorter time frames in which knowledge is doubling itself, may be two to three times during the service life of an individual. This personal obsolescence is one of the prime causes of generating inertia in excess of what is required, if results in insistence on maintaining the status quo which many a time helps to

solve the wrong problem most efficiently. Or putting it in another way the rapidity of changes in technology ie the problem solving know-how—technical, commercial industrial or administrative – makes past experience not only frequently irrelevant AND sometimes dangerously misleading.

The prime cause of quick change, therefore, is technological. However, technology considered in isolation of the economic makes it impossible to formulate an adequate strategy. Further, to make use of the results of the technological it is essential to recognize the role of the social sciences. In manipulating change, we need to apply ourselves to people before we can apply ourselves to problems. Moreover, the biggest obstacle to innovation most often rises from social factors within the organization rather than pure technical know-how or equipment. So often this most important fact of life is not acknowledged with results that we by now should be thoroughly familiar with. A number of questions arise as to how is it possible to transfer the social sciences input to a productive activity: such as industry. Should research and development be viewed as capital investment, routine expenditure or overhead? Can the traditional administrative structure, the methods of evaluating human performance and the operating procedures deliver the goods? In government can the finance function play a constructive role in research, development and industry? Should research and development institutions be built around gifted individuals?

If it is accepted that there is shortage of competent technical persons is there any merit in setting up new institutions and pulling them out of existing jobs within the country? Would it not result in transferring an asset from one pocket to another without any net increase in effectiveness? Do these difficulties arise out of:

1. The fact that do we lack capability to understand or the learning itself?
2. Is that even though we have the capability, we do not wish to burdened by the facts of given situation?
3. Is it we are so used to a particular or familiar (comfortable) way of doing things that any effort not conforming to the 'set' way means countering too much inertia which requires Herculean effort?
4. Is is, that there is blind adherence to the status quo on account of fear of the unknown?

5. Is it while paying lip service to the use of modern management aids we consciously or unconsciously in practice create conditions, making it virtually impossible for any such effort to succeed?
6. Is it because those in authority with 20-25 years experience find that it can take one-third of that time with present-day management education/aids for new entrants to develop equivalent or even better skills for decision-making and this creates built-in resistance?

TRAINING—AN IMPORTANT MISSING LINK

Whatever it may be, the emphasis is on the human being. What should be done to upgrade his effectiveness which is synonymous in moving towards self reliance? There are two types of training, the first: on-the-job and the second: off-the-job. In each type it can either be functional in nature or general/supervisory/control/coordinative training. While we have functional training both on and off-the-job we also have general training off-the-job in various staff colleges/institutions or academies. The fourth type of training i.e. general/supervisory/control/coordinative on-the-job is conspicuous by its absenc. This is a missing link, a link which bridges practice to theory and not the other way around. It is necessary for developing the qualities of leadership in managers/executive/ administrators to forge this missing link since **80% plus of such development takes place on-the-job,** where the physical transactions actually take place, only then will efficiencies improve that will stand the test of time. In this type of training one applies new ways and means to unsolved problems **where they exist** and not in the classroom and it doesn't take long to bring in higher efficiencies. However, few are aware that such training is necessary. Those who are asleep need awakening! Self reliance is helped by applying the rules of the game consistently. It can hardly be said of our tax administration, it appears the higher the tax rates the greater the rewards of evasion – at the expense of the honest. The affects can be disastrous. Our direct taxes amount to about 15% of the intake. Let us have a look at the trucking industry. When one sees black smoke coming out the exhaust of a truck it is literally foreign exchange going in smoke, at any rate at least 88% of it! But why should it be otherwise? To put matters right would call for employment of automotive engineers, may be setting up of a small workshop. Stocking some spares, organizing the effort to prevent wastage and for say, a capital

investment of Rs 400,000 in facilities and annual running expenses of say, up to a similar amount there may be return of 75% per annum in the form of 5-10% more miles per gallon of fuel, 25,000 more miles engine life, 3,000 more miles tyre usage etc. etc. The fleet owner through tax evasion could get away with far more with literally no effort. The application of the rules of the game in an inefficient manner helps, through its multiplier effect, to generate a self-sustaining mass of wrong-doings. However, any attempt to put such types of problems right without regard to some of the points brought out earlier can generate more problems than the attempt sets out to solve. Just as it takes 5-7 years to introduce any sophisticated weapon system it would take about the same time period to introduce a new tax administration system. Complex problems do require sophisticated approaches to resolve them. Oversimplification throws the baby out with he bath water, no problem is left over!

To ignore the facts or not to be interested in their exposure works against the concept of self reliance. Again, knowledge that is not applied isn't of any use. The potential continues to exist at the expense of the kinetic, very much like an unused bank balance. This is why there is a hadith that says "Man's glance at knowledge for an hour is better for him than prayer for sixty years". It is out of this attitude that the Muslims of yore translated the knowledge from other climes into Arabic from 750-850 AC. What followed ws a creative outburst which covered the whole spectrum of human activities both in the arts and the sciences. Observation of phenomena were made and patterns were established leading to hypotheses, theories and laws. Progress followed in ophthalmology; in understanding reflection and refraction; in introducing the pendulum to determine time; in setting up hospitals; in determining the effect of the mind on the health of the body; in originating chemistry; in developing the laws of falling bodies in mechanics; in producing tables of specific gravities; in giving trigonometry its modern form; in shipbuilding; in developing commercial methods; in introducing the Indian system of arithmetic; in astronomy developing catalogues and ascertaining the earth's size, the length of the year, and publishing correct tables of the sun and moon along with verification of the accuracy of the aquinoxes; in developing algebra from the germ left y Diophantus... If we have not developed by ourselves adequate managerial/administrative/executive methods to deal with our problems then self reliance

will remain a mirage, and I do not refer to the aeroplane! In the process stresses must build up, earthquakes happen to relieve interstrata stresses and thereafter establish a new equilibrium. Enlightened policy – which means its successful implementation – is meant to prevent such violet readjustments.

QUALITATIVE SHIFT

Because old methods are generating new problems even when doing the old work i.e. a qualitative shift has taken place, this shift must be reflected in our work methods to relieve stresses. Substitution of machines to amplify muscle power through mechanization and amplification of mental processes through automation of data processing, electrically and mechanically to begin with, now electronically must force emphasis on what the individual was not that concerned with a scant twenty years ago. This will include new insights into symbol generation, transmission and its logical manipulation. This has led in symbol generation to invention of sensors such as radar and sonar; in symbol transmission to the telephone, radio and TV; in symbol logical manipulation to the increasingly productive use of the computer in electronic data processing i.e. creation of software, where training has the upperhand. A better understanding of the role information plays focuses on the fact that it is the interaction between the sub-systems rather than the efficiency of each part that controls the output. That the capability of good decision maker is not necessarily coterminous with the design of a good decision making system. This would be akin to trusting a heavy weight wrestler with designing a crane, merely because he grapples with heavy weights!

A better understanding of the longer the effect of a decision the less reversible it is and the more strategic it becomes affecting a larger portion of the system and the more concerned it must become with the goals/objectives that are selected. While all this may appear to be trite truism but appears we need to be reminded of the obvious.

It is not so easy to exceed the well known speed limits on the road—the speed limit signs do act as necessary reminders. Robertson makes this clearer

> "The business of government consists of processing information and taking decisions. The information which has to be processed is very extensive and the decisions which have to be made are very complex. It is unreasonable to expect Ministers and senior civil servants to manage the business efficiently unless they

are supported, on a massive scale by the techniques of modern information technology." (The Design of Information – Processing Systems for Government).

The busy manager/executive/administrator is after all doing only two things: handling information and making decisions – nothing else. Those organizations that pay heed to the above will always be in a position to use our manpower much more productively than we are doing at present.

In conclusions it may truly be said self reliance **IS** a state of mind which the power structure has to accept: hat the problem is complex; that complex problems require a different method of attack than what we used only 20 years ago; that the method of decision making affects the content of decisions; that people react violently when attacked in their weak spots; that because the State operates on a massive scale there is a dichotomy between the bureaucratic procedural insistence on following the written rule and the several exception to the said rules because the human mind finds it humanly impossible to allow for all the permutations and combinations of variables in advance, and that resolution of this dichotomy is necessary to obviate massive delays. This need the fourth kind of training brought out earlier, after all time is of the essence; that above all we must accept that our failures are failures of implementation. If this isn't so what is?

MAY 1980

/some thoughts