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## Mantras of Management Gurus: An Experiment

V.P. OJHA\*

*The Railways in India manage a vast network of rail transport for goods and passenger services. The Rail Coach Factory (RCF) located at Kapurthala (Punjab), is a modern factory equipped to manufacture one thousand coaches per annum. However, there is a long story of success, failures, labour unrest and professional excellence behind the present reputation of the RCF as a world-class factory. The basic principles involved in the transformation of RCF involved managerial innovation, optimum utilization of resources and worker participation. The writer gives a first hand account of this transformation that he observed from close quarters.*

The rapid growth of technology during the past fifty years has generated new challenges for managers. Change, or at times abandonment, is the key-word. It is in these environments that the managers must learn to thrive and survive. The torchbearers are treading on uncharted domains where risks are high, yet the gains could be awesome. A leader has to earn respect of members of his team. The management gurus have laid down some principles, which impart courage to face the changes. These principles are still an art rather than the science. Missions should be defined by a group as a unit, and refined continuously till the objectives are achieved or excelled. 'What else should one do?' should be one's self-introspection.

How do we practice those golden rules? According to some of the preachers, one has to learn them, teach them, and finally practice them. Some of these principles were practiced at the Rail Coach Factory (RCF) in India. Old conflicts replaced the

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mutual trust in team of workers and manager. The lost glory of RCF was restored. It continues to excel its own performance.

The Railways in India manage a vast network of rail transport for goods and passenger services. More than 40,000 coaches of different types are in use to move passengers across the length and breadth of the country. Their own captive production unit, the Integral Coach Factory (ICF) at Chennai had been the principal supplier of coaches; part of the demands were also met from three other similar, but smaller units in the country. Mid-eighties found the combined capacity of all the coachbuilders inadequate to meet the needs in days to come. The Railways planned a modern coach factory with an annual capacity of one thousand coaches, to be designed by one of the coachbuilders of repute.

The new factory, called Rail Coach Factory (RCF) was sited at Kapurthala in the state of Punjab. The late Rajiv Gandhi, the then Prime Minister, inaugurated the construction of the factory on August 17, 1985. The piece of land selected for the factory was initially covered with thick layers of sand and sand dunes. The engineers planted more than 200,000 plants in that area. The desert yielded to a green zone. The computer controlled machines were later installed there. An eighteen hole golf course has been carved out in the RCF campus. The recycled and treated water from the colony and workshops is sprinkled in the golf course to maintain it lush green.

The Railway Board was keen to ensure high level of productivity of labour and machines in the new factory. The Rail India Technical Services (RITES), a corporation of Indian Railways, was engaged to define the productivity norms for RCF. LHB of Germany and FIAT of Switzerland, meanwhile, signed an agreement with the Railway Board in 1995 for design and supply of twenty-six numbers of state of the art coaches. Recruitment of workers and managers was initiated. Simultaneously; nevertheless, from the year 1987, contract workers were engaged to assist RCF, to turn out sufficient numbers of coaches. However, since contract workers were not well trained for the job assigned to them, the quality of the coaches was the casualty. RCF earned a bad name on that account.

Some changes took place during the month of August 1996. The workers elected a new body of Staff Council with its strength going up to 17 from the previous 12. A new incumbent took over as the general manager RCF. The new general manager was greeted with labour turmoil at RCF. Each conflict is unique; each has its own solutions. The conflicts and their solutions are not based on any rationale. No two groups are identical in their perception about what is right or what is wrong. Most of these initial differences gradually yield to congenial atmospheres for work through mutual trust.

## THE REASON FOR LABOUR UNREST

Workers trained by RCF gradually replaced those on contract. The transition, however, was not smooth. The workers elected their representatives in July 1994. The staff council questioned the productive norms defined by RITES but consented to try the scheme for one year, starting from July 1995, subject to its review at the end of the period of trial. The approach adopted by both the groups could possibly lead to a solution. The production was slow during the period of trial and the similar trend continued during the following year. The RCF faltered to meet its target of coaches during those two years and earned bad name.

The management was looking for a suitable agency to review the report; yet, the workers intensified their claims to increase the time allowed for by RITES. The shell assembly shop struck work in September 1996, asking for additional staff for the job entrusted to them. The management relented to their demands partially.

The industrial peace was short lived. Poor state of maintenance of plants and machineries, booking of idle time for non-availability of material and workers' reservations about functioning of the electronic gate attendance system were some of the issues for frequent stoppages of work. The meeting ground between the management and the representative of the workers seemed elusive. Finally, the workers of the paint shop struck work in November 1996, in protest against shifting of some of their workers to the coach furnishing shop for a week. That practice was in vogue for a long time to enable the furnishing shop to dispatch coaches by the end of a month. However, following a meeting between the GM and the members of the staff council, it was agreed that there would be no shifting of men during the course of a month as demanded by them. That was not apparently acceptable to some of the members for inexplicable reasons. The strike lingered on. The frequent dialogues between the members of the staff council and the management were leading nowhere. Some of the leaders including few of the members of the staff council were served with show-cause notices for punishment in the second week of December 1996. The workers of all the production shops struck work from January 2, 1997. The Labour Officer of the Government of India intervened. After protracted discussions with both the parties and the labour officer, show cause notice was the only controversial issue left.

The notices for punishment were issued almost three weeks after the strike in the paint shop. The management was confident that the workers themselves would resolve the issue, since the problems of general workers had been accepted. It was made clear that the punishment to the workers served with notices would be on the merit of individual cases. There was a suggestion by some of the unions, other than the staff council, that the strike could be called off if the punishment to the workers, who were served with notices, could be light. The staff council wanted the notices to be withdrawn.

The strike ended in the fourth week of January 1997, when the management agreed to impose minor punishment to those served with notices. Since state assembly elections were due shortly, there was political pressure to end the strike and the civil administration had already intervened for fear of violence.

Was it a correct approach to handle the unrest? Was it possible to take the same decision earlier? The answer to the last query could be positive. The management was looking for enduring peace. That is possible only through trust and integrity. Who was the ultimate gainer? The workers lost the wages for the period of dispute. The management lost the production of coaches. The strike ended when both sides realised the futility of the game. The general manager had to decide the nature of punishment to the workers, who were leading the strike. It was a tough on the spot decision. Someone has said 'Be soft on the people and not on the problem'. The staff council accepted the decision.

#### GETTING DOWN TO BUSINESS

### MILESTONES RCF

• FOUNDATION	17.08.85
• FIRST COACH	31.03.88
• AC CHAIR CAR ROOF MOUNTED AC	
	30.01.92
• AC 3 TIER COACH	06.10.93
• ISO 9001 ALL SHOPS	17.08.97
• FIRST MEMU	28.03.98
• FIRST SELF PROPELLED ART	24.03.99
• ISO 14001 FACTORY & COLONY	21.07.99
• EXPORT OF BOGIES VIETNAM	03.02.2000

There was mixed feeling amongst the management and the workers, about the termination of strike. The review of the incentive scheme was an agreed agenda. The norms set by RITES had to continue. The general manager told all the managers that he accepted full responsibility for lapses, if any, in handling the strike. Managers had an opportunity to be proactive leaders. They were advised to follow the mantras of management gurus. The general manager quoted Anthony Robins "It takes a lot of discipline to be able to retrace your steps, learn painful lessons and mend fences and take a good look at new possibility". They were asked to devote some time to listen to the audio tapes and go through the books written by the experts in management and leadership. There was a sense of relief amongst the managers.

The general manager addressed a similar meeting of the members of the staff council. He told them that the objectives of the organisation could not be ignored. Above all the workers and the management had a common goal that is to manufacture coaches of requisite quality and in numbers to meet the needs of the Indian Railways. The

response from the members of the staff council was positive. They promised to work hard for the target for the next year and efface the torrid past.

Review of incentive scheme was to be initiated at the earliest. The staff council wanted RITES to conduct the review. RITES was initially reluctant to revise its own report but later relented. The management and the members of the staff council got together to frame list of references for review. The work started in the month of July 1997.

RCF was assigned a target of 1021 coaches for the year, starting from April 1, 1997. The production plan was revised upward by forty coaches to clear part of the backlog and to re-establish the credibility of RCF. Finally, a target of 3.75 coaches per day was planned to compensate for buffer of components and assemblies, which were consumed during the strikes in some of the shops. The task appeared difficult, since the best daily outturn of fabrication shops, excluding the period of strike, was three shells. The best in a team emerges when odds are difficult and risks are high.

The Planning department and the shop managers suggested that some of the assemblies for the shell could be off loaded to industries outside. It was an unsatisfactory approach, since low productivity of the shop was taken for granted. The suggestion was however endorsed, as one time exception for a short time of six months to cover the possible risk.

The general manager recalled a mantra of a management guru, "nothing beats a personal direct observation as an outsider". He did not want the past experiences to prejudice the actions in future. He initiated a ritual of inspection of shops, one at a time. The entire senior and shop managers including those from design, quality, and materials procurement departments participated. The shell shop was the first to be visited. He went to a machine and asked for the list of items planned on that machine for the day. A hand written list was shown, while one expected a computer generated sheet. The raw materials for few items, which were planned for manufacture on the machine that day, were not available for processing as they had not completed their previous operations. The pallets for storing components at various stages of manufacturing were either damaged or loaded with components in a disorderly fashion. Wastage of materials and efforts were depressing. The shop was dirty. Some of the industrial sweepers were not fully functional. A 1000-ton HMT blanking and forming press was not working properly. It was tooled for manufacture of two important components of the coaches, car lines and body side pillars. The first controlled the shape and strength of the roof and the second, sidewall pillar, provided a base structure for the sidewall and imparted shape and strength to it. The sidewall was connected to the underframe and roof through those pillars. These two components were made by fabricators outside from the blanks supplied by RCF. These fabricators were not equipped for the job. The quality of those components was poor. The quality of sidewalls and roofs was equally bad.

The shops took over the house keeping with zeal. The industrial sweepers were repaired and transferred to the shops. Commissioning of all machines and improved maintenance of the plant and machinery had positive impact on the production of components. The design, manufacture of jigs and fixtures and their upkeep were integrated under the management of the Planning Organization. They had to design and manufacture new jigs, fixture and dies and repair and calibrate the existing ones with a view to improving the quality of coaches. Those little actions were time bound and proved effective. The engineering data available on the computer had to be corrected. That effort took considerable time. It was revealed that some of the items being purchased or fabricated on the shop floor were obsolete. The purchase manager was using a list, which was four years old. The changes in design were not reflected in those lists.

The managers at all level were convinced that the chaos prevailing on the shop floor had to be resolved fast. The tasks were defined for the managers. The scheduling of components for machining was assigned the topmost priority. Since the general manager was monitoring the important activities on the shop floor, the managers kept their saws sharp. They could discuss any problem with the general manager; but they had to solve the problems themselves. That was the way to instill self-confidence in them. The initial stress and hesitation in attaining the objectives were transformed into problem solving skill, leadership and above all comradeship for breaking new grounds.

The monitoring of progress of the tasks by the general manager had impact on the level of production of the Shell component shop. The availability of components for fabrication improved. The daily outturn of the shop increased from the average of three shells to 3.4 by the end of April 1997. The workers of that shop were elated for earning a bonus of 20% for the first time. That was the optimum figure of incentive amount. It was a turning point for the organisation. It was a positive response from that group, which spread like wild fire to the workers of other shops as well.

The shell shop was still below the expectations of 3.75 assemblies per day. The general manager therefore suggested that another assembly line with limited number of workers should be started for those components, which were falling short of the target of 3.75 per day. That was launched. The shop got additional shell component every fifth day. The daily outturn rose to 3.7 shells per day by November 1997. The shop managers were asked not to differentiate between the shells for air-conditioned and non air-conditioned coaches for the outturn of a day. Two of the small components, fabricated by the shell shop were transferred to another Railway workshop, but only for one or two coach sets. That provided marginal psychological relief. Was it not a miracle that the Shell shop achieved a level of 3.8 shells per day by March 1998, just one year after the strike? The average bonus for that shop was above 30%.

The proposal for getting some of the fabricated items from trade was scrapped by September 1997. All the shops of RCF qualified for ISO 9002 in August 1997. The 1000-tonne HMT Press was fully functional. The carlines and body side pillars manufactured in house, improved the quality of shells, besides saving in cost as those were formed on the HMT press.

The Shell assembly shop was the next area of concern. Some of the processes were simplified. The managers on the shop were thinking of prefabricating some of the assemblies outside the shell shop and then weld them in position inside the shell. The shop was asked to work on four assembly fixtures at a time. That would reduce the waiting time of the workers during loading and unloading of fixtures. These and many other innovative ideas emerged from managers and his team, which were scrutinised and gradually implemented.

The output of the shell assembly shop at 3.4 to 3.5 shells per day from April 1997 and was ahead of that of the shell component shop. In spite of that, the bonus of the workers of the shell assembly shop ranged from 13 to 16 percent, as against 25% earned by their counterpart in the component shop. The number of shells available on the shop was declining, resulting in overcrowding of workers inside the shells. It was a potential safety hazard. The shop manager had built enough mutual trust to persuade workers to agree to the reduction of the strength of the workers. They volunteered and simultaneously asked for strengthening of Shell component shop. The number of direct workers in the above-mentioned shop was 445 as on April 1, 1997 and 435 on the same day one year later. There were just 405 workers as on November 1, 2000. The bonus earning of that group varied from 25 to 30 percent.

The managers of the shops had responded to the problems of the workers and their working environments. Workers, in turn, appreciated the efforts of the managers. They appreciated the introduction of new varieties of coaches and fill up the order book, so that the workers could earn more bonuses. They looked forward to new challenges. The number of workers had reduced marginally. The overall performance of RCF had taken a quantum jump in one year. The events of the preceding years lay buried.

The next three shops, Painting, Furnishing and Finishing and Bogie shops were comfortable with an outturn of 3.5 coach sets per day. The furnishing shop had to turn out one air-conditioned coach per day. On close scrutiny of the productivity of each of the sub-groups, some degree of slackness was found and corrected. The constraint in testing one air-conditioned coach every day was removed by installing second testing pit. The objectives were achieved inch by inch.

RCF had set its missions, keeping the corporate goal of the Indian Railways in view. That is, to develop capabilities for design of the state of art coaches. The process of thinking creativity is once own. The innovation, flexibility and will to change had



to be learnt and practised continuously, if RCF has to serve the Indian Railways efficiently in days to come. Changes are normally resisted as any new or strange thought sends a shiver of insecurity in the mind of the boss. Innovations were encouraged at RCF. Working with industries, RCF evolved a package type of air-conditioner for coaches, which is compact and relatively free from maintenance. Three-tier air-conditioned coaches designed at RCF were introduced in the year 1993. These coaches gained instant popularity with the passengers. Lightweight day coaches with flexi coil bogies with superior comfort during run, were manufactured in consultation with the design wing of the Indian Railways. A train with these types of coaches was introduced between New Delhi and Amritsar, on August 15, 1999, and christened as Swaran Shatabdi. RCF however could not survive on its laurels of the past.

The launching of the Swaran Shatabdi was a moral booster for the team at RCF. Based on the success of those coaches, RCF was asked to design and manufacture one coach with straight walls. The design layout was furnished by RDSO. The design had the approval of the Railway Board. The designers at RCF introduced some of the design concepts acquired from the collaborators in Germany. The shell of the new coach named as 'IRQ' was redesigned. The numbers of components were reduced. Calculations based on data available for coaches manufactured in India and those designed abroad, revealed that it might be possible to reduce the wall thickness of the new shell, as the total glass area of windows of coaches supplied by the German collaborators was more than those provided in IRQ coaches. Glass in the windows transmits about sixty percent of heat. A wall thickness of 71 mm was adopted. The coaches designed abroad had a wall thickness of 90 mm. The reduction in the thickness allowed extra width inside the coach. The width of the side berths and the passage was increased. That added to the comfort level of the passengers.

As mentioned above, RCF was provided with financial assistance to purchase special plants and machineries, for the manufacture of coaches to the new designs. Investments, in project like IRQ coaches had to be limited. RCF was, nevertheless keen to launch into new ventures during the interim period. The Railway Board on their own included two types of self-propelled coaches. These were Accident Relief Train (ART) powered by a diesel engine and Main Line Multiple Units (MEMU) hauled through electric traction. The shells of these differed from those of conventional coaches being manufactured at RCF. The shells of these two self-propelled units also differed from each other. Planning managers were advised to adopt identical shells for the ART and MEMU, so that the modified fixture could be used for both the types of shells. The project was a challenge to the capability of the managers at all levels. Some of the members felt that RCF could not do so. It was a challenge for the management.

Officials from leading coachbuilders from Europe, while on a visit to RCF for possible collaboration on the metro transport system for Delhi mentioned back home, they provide all the electrical and control wires in the side wall and the roof. The technique was found to be efficient and the quality of work was excellent. RCF, on the contrary, followed a different system. Five electricians could be saved from each of the coaches, if RCF could adopt the technology of wiring of roof while that is still in the assembly fixture. The managers in charge of the shops, planning and design pooled their resources to evolve a procedure to achieve that objective. Trials conducted to test the process were successful. However, the project got stuck when the shop manager felt that the operation time on the fixtures for the assembly of roof may increase. The supervisor, responsible for fabrication of roof and its assembly on the shop floor, volunteered to own the project of the wiring of a roof in his section and later, achieved the goal of wiring of roofs of three non-air-conditioned coaches every day. Fifteen numbers of electricians released thereby and equal number of helpers from the mechanical groups started work on MEMUs. That team completed the first unit in four months' time. Subsequently, two sets of units were assembled every month and RCF had established a capacity of 24 sets of MEMU per year as against the target of 20 sets. The need for enhancing the strength of staff or number of fixtures for assembly of roof just vanished. It was an example of involvement in the workers and the managers.

How was this achieved? There were several reasons for it. The first is, be a good listener, own a project and follow it to its logical end. The management gurus advise that one should listen to others carefully, and assimilate what has been said. New ideas may thus come up.

The Railways have their own training institutes to train the young managers recruited for them. The knowledge about the various facets of working of the railways including the technical and managerial skills is taught to them. Some of those officers are selected for RCF. Those of the men, who showed exceptional capabilities, were sent to foreign countries for training in specialised fields of knowledge.

The age profile of coaches on the Indian Railways was such that the requirement of coaches could go down for some time. RCF had to look for alternate market and products. Normally, the Railway Board approve the development of a new variant of coaches when they feel the need for the same since the development of a new prototype is expensive and takes considerable time. Vigorous testing of coaches is needed to ensure safety of traveling public. RCF had to keep itself abreast of latest technology and trend in design of coaches, so that they could advise and sometimes convince the Railways about the new possibilities. RCF was keen to enter the export market, so that it could sharpen its capabilities in design, development and finally selling coaches to the satisfaction of the customers in other countries. RITES and

IRCON (Indian Railways Construction Company, a corporation of Indian Railways) suggested that RCF should offer meter gauge coaches with Eurofima bogies, which was the state of art design, for countries in South East Asia. The Railway Board approved the project. The bogie frame was designed and fabricated at RCF. The bogie was sent to RDSO for checking the fatigue life. RCF, in the mean time started offering coaches with superior bogies for meter gauge through RITES and IRCON.

RITES were looking for 72 bogies for meter gauge system for Railways in Vietnam. RCF bagged the order for these bogies. These were manufactured and shipped in record time. The planning, design and manufacturing shops jointly worked for the project.

RITES finally submitted their report on the review of the incentive scheme by the middle of the year 1999. They proposed scaling down the time allowed. The reduction varied from 30% for air-conditioned coaches to 7% for coaches of other types. However, the rates for bonus were enhanced, since the pay of all the government staff was revised upward in the year 1998. The Railway Board decided to link the bonus to the mean of the grade of the salary. Since there was an appreciable increase in the incentive amount of a worker, the management had to link it to the productivity in consultations with the unions.

There are two types of incentive bonus schemes prevalent in various repair workshops and production units of the Indian Railways. The first scheme, based on piece rate system, was introduced in the year 1950. The scheme does not link the incentive amount earned by a worker to the final outturn of a group or shop. The scheme needed lot of manpower for management.

Based on the formula adopted by the Railway Board, the incentive amount, to the staff engaged in piecework system, was increased by 4 to 5 times over the existing level. There was a reduction of 12% in the allowed time permitted for each of the operations. The Railway Board wanted across the board reduction in allowed timings. The planning manager computed average reduction in timings, as suggested by RITES, for the different types of coaches planned for that year. The Railway Board approved a reduction of 7% in allowed timings for all the coaches with an equalising factor (or multiplying factor) of 1.2. The incentive amount, payable to the workers of RCF, increased four times from the level existing prior to the revision of rates. The workers felt that they have got a fare deal and accepted the proposal.

The tranquility and the enhanced productivity had been at times, riddled with unknowns and uncertainty. There were anxious moments as well. Yet, the team at RCF rose to the occasion and met the challenges. The positive response and the active participation of the workforce helped in restoring normalcy on the shop floor.

Some one has said that any two leaves of a tree are not identical. The human beings are also diverse in nature, yet each one of them has a strong point. How do we bring them together for the cause of the organisation? The general manager realised what the gurus had said: "One manages the resources and leads the people". The results expected of them were identified. The guidelines and resources were part of the team work. Accountability and consequence was to be judged by the people. As people gradually move to the domain of creating a 'win-win' situation, the competition amongst the fellow workers turns into one of cooperation.

The paradigm shift in the attitude of the workers and the management had ushered some changes. The cycle time for manufacture of coaches came down from about three months to three weeks for air-conditioned coaches and two weeks for coaches of other types. The inventory on the shop floor was optimum. The errors in drawings, any would be known quickly. That reduced the number of defective parts produced. The wastage on the shop floor came down drastically. There was a saving in the consumption of steel per coach by about 20%. The figure looked high yet procurement of steel for each coach was reduced by that amount. The use of carbon dioxide gas for welding showed downward trend. Both factors reflected a considerable reduction in rework. The workers had addition time for production. CF marches on.

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