INDIAN ENGINEERS' FEDERATION (INDEF)

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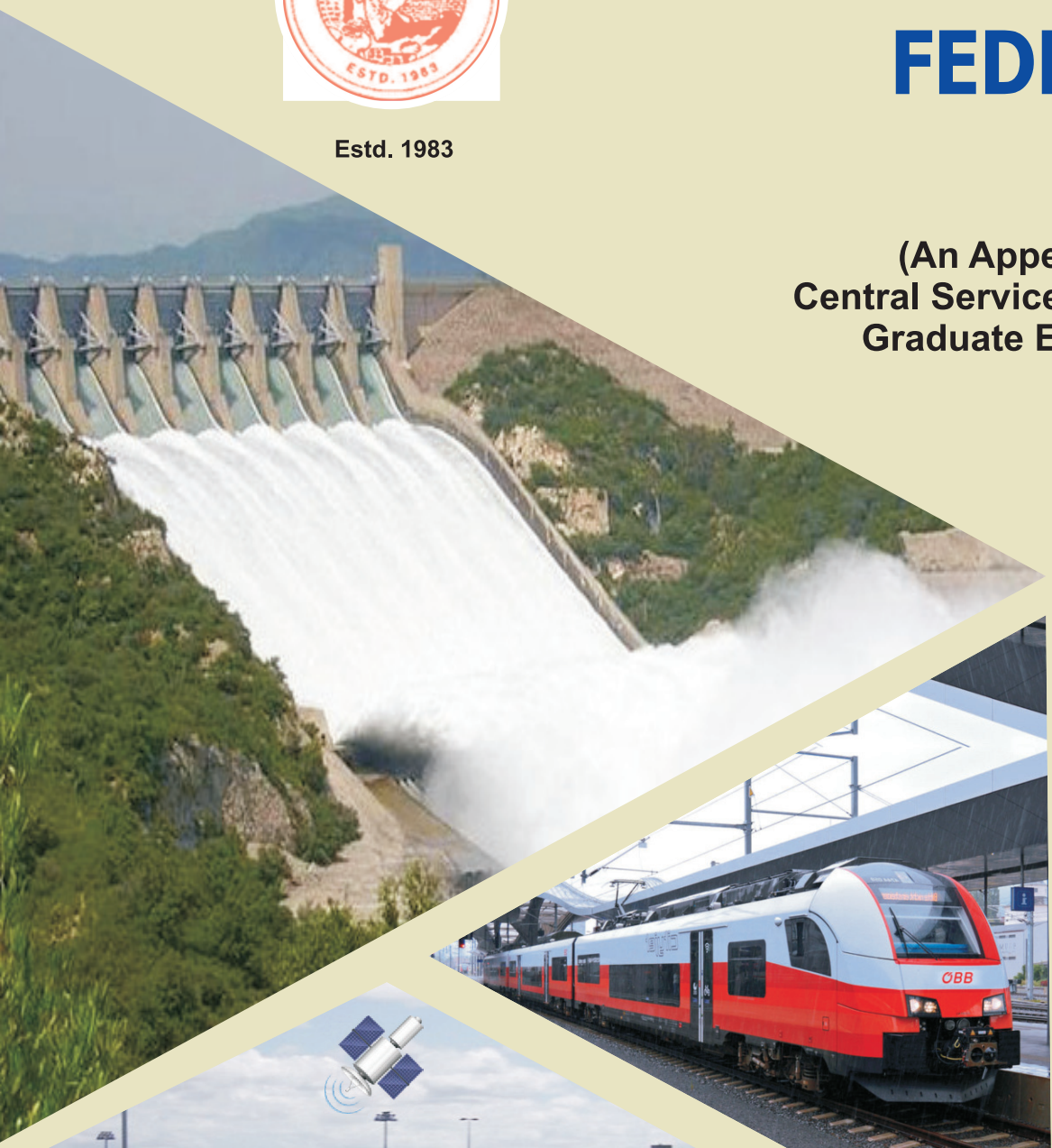
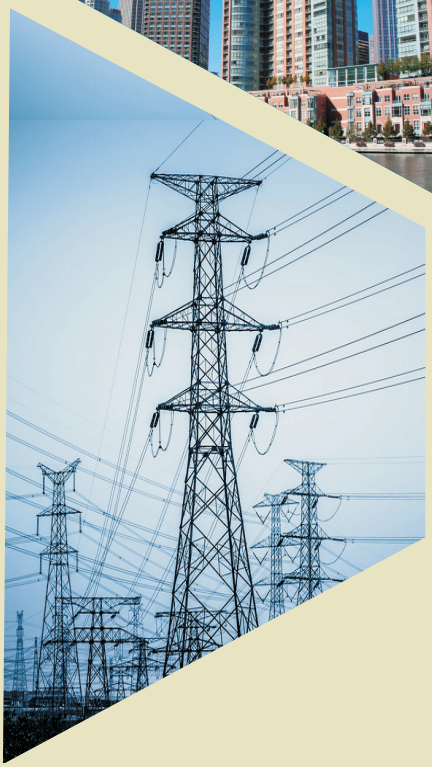
(An Appex Body of State & Central Services Associations of Graduate Engineers of India)





Proposal on

ENGINEERING COMMISSION

Preface:

On the auspicious occasion of birth anniversary of legendary Engineer Bharatratna Sir M. Vishveshwarya, we express our greetings and pledge to recite the prestige of Engineers dreamed by this great visionary.

The Indian Engineers Federation (INDEF) is the national dais of the Associations of in-service Graduate Engineers. This federation came into existence in 1983 at Kevdiya, Gujrat,which represent more than 1.5 lakhs of Graduate Engineers from 41 Center, Stateand Union Territory Engineering Associations.We are legitimately striving for the betterment of nation through Engineers.

Engineers are the harbingers of the National Development. Their valuable contribution in the fields of infrastructural development is lauded by the leaders. Engineers have created modern pilgrimages right from Bhakra Nangal to Kalmeshwar projects, Roads to Railways to Metros to High Rise Buildings to Telecommunications.

There is unanimity of opinions that societies all over the world are benefitted of the advancement and translation of Science and Technology for the upliftment of masses. Each area of administration, be it economic, social, industrial, agricultural, healthcare, educational shall have its own domain and inheritance of necessities of specialization. It demands intimate, emerging knowledge and techniques for the sustainable progress.

To achieve the above goals, the public administration in several countries have undergone swift transformation to keep pace with fast and sustainable developments in the ever changing professional fields. Unfortunately, the public administrative structure in India, still continue to carry the legacy of colonial past.

The Administrative Reform Commission (1969) have strongly recommended that policy planning in the development dealing with scientific and technical matters should be entrusted to specialized experts in the respective fields.

It is thus necessary that all Government Organizations engaged in engineering activities, should be headed by the Technical Experts. Inadequacies in planning, execution and maintenance of development works, disparities in career prospects of engineers shall be pragmatically addressed so that the engineers can wholeheartedly and solemnly engage themselves in the national progress. This will ensure acceleration in implementation of the projects dreamed by the architects of the nation.

We are thus furnishing the proposal of the Engineering Commission to highlight the importance of role of engineers in the development of nation. We urge to kindly consider the necessity of Engineering Commission for attaining the faster, sustainable development of theIndian Society and Mother India.

Er Ashok Sasane
Secretary General, INDEF

PROPOSAL ON ENGINEERING COMMISSION

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CHAPTER - I

Introduction

Engineering - the Concept	*1.1*		Engineering is the application of science as well as technological translation of scientific principles. With the dawn of civilization man knowingly or unknowingly started converting the scientific principles into reality for his own benefits. Today the induction of engineering is not limited merely to harnessing power and energy for basic human needs, but the same has pervaded almost in all spheres of our life. For example, latest innovations like bio-technology, bio-engineering **information technology including artificial intelligence** etc. have opened up new horizon in medical science which could not have been contemplated a few decades ago. While the application of engineering was once veering around achieving prosperity, with the advancement of technology, the same has made in-roads in all activities of man-kind from welfare to destruction. In fine engineering occupies a pivotal role in progress and development of the country as well as in advancement of the nation. While knowledge of engineering was acquired in an unconscious manner when man lived in cave, **he is now consciously trying his level best to bring sophistication in the field of transportation and communication through roads and bridges and information technology, effective and sustainable management of water resources includingirrigation, supply of fresh water, renewable energy, maintainance of various data,** medical treatment of the suffering humanity , security of the country etc. in course of his triumphant march towards creation of a prosperous and affluent society in which the blessings of science and technology are showered in an equal manner , whether rich or poor so that no one is required to submit himself to the mercy of another for fulfilling his basic needs and requirements in **course** of achieving peaceful and flourishing life.
Impediments in the way of achieving the set goals	*1.2*		As already said engineering activities were started by man without much zeal. But with the progress of civilization human needs are acquiring increased dimensions and for the fulfilment of the same, man is exerting endless endeavour to convert into reality the various concepts of scientific principles through specified art learnt with years of experience. While the goal of each and every such activity is set forth by our immediate and long term needs, such goal cannot always be achieved due to lack of effective control of the activities, wrong use of resources, ineffective planning of men and material, lack of technical persuasion etc. as given below. Unless engineering activities are properly conceived with appropriate planning and thereby making effective use of engineer sharing proper status and appropriate freedom in their spheres of their activities, the goal for such activities cannot be realized.

		a)	Ineffective planning
		b)	Lack of proper training and knowledge up gradation in their domains
		c)	Lack of streamlining of activities and updating the working procedures
		d)	Improper evaluation of the role of engineers including inadequate deployment of technical expertise by entrusting works of engineers to non-engineers.
		e)	Administering engineering departments and works thereof through generalists.
		f)	Non-uniform placement of engineers and under-evaluation of their status including career values.
		g)	Inadequate financial grant to engineering projects /departments /organizations.
		h)	Inadequate importance attached to the aspect of quality assurance of engineering works
		i)	Inadequate up-keep of assets created through different engineering activities.
		j)	Unscientific approach towards formation and generation of technical data-base and best use of the same.
Remedial measures for reaching goal of engineering activities	*1.3*		The causes which stand in the way of execution of developmental activities in a time bound manner and deliver the desired goal, however, can be overcome if a sound technical evaluation is made by competent technical persons after taking into account the factual details concerning such activities. The needs of engineers who spearhead these activities need be taken into consideration through appropriate recruitment and training policy, promotion, service conditions and career values are concerned to useful and effective utilization of their expertise.
Percolation of benefits of engineering and technology in equitable manner	*1.3.1*		Since independence, it has not been possible for the government to distribute the benefits of technology to the people placed in different parts of the country in an equitable manner which has led to wide disparity.

Setting up Engineering Commission	*1.3.2*		There is an urgent need to overhaul the structure of engineering /technical departments by inducting experts at decision making levels. It is a great regret that in spite of forceful recommendations of Administrative Reforms Commission, 1969 and many other important committees in this regard no comprehensive policy has been adopted either by Union or State governments. Most unfortunate part of the deprivation suffered by the engineers and technologists is that those emanate from recommendations of the Central and State Pay Commissions one after another. Before embarking on a comprehensive corrective process, it is better for the governments to enquire into the causes of the discrepancies and to arrive at comprehensive remedial measures thereof. This objective can through a Commission to be appointed by the government itself which may be termed as "Engineering Commission".

CHAPTER - II

Challenges faced in carrying out Engineering activities and Problems of Engineers

Ineffective planning	*2.1*		Planning plays a key role in all sorts of development activities. It is a wise practice to associate at the time of formulation of plans persons of particular discipline who will be entrusted with the execution of such planned works. But unfortunately such policy is not followed in its proper perspective in course of planning engineering activities as a result of which engineers very often are confronted with serious bottlenecks in execution of activities, so planned and in some cases due to inadequate and faulty planning the desired results cannot be achieved. Engineers serving governments are entrusted with seventy percent of our planned efforts. But unfortunately the governments are not adequately equipped with infrastructure required for data-base planning, monitoring, design, research and development works as a result of which plans and programmes often fail to provide to the engineers the proper direction.
Ineffective planning in respect of machinery and equipments	*2.1.1*		Optimum modernisation in our development activities not only hasten up the work but at the same time it provides an assurance towards quality of the end product. But state and central engineering organizations do not possess adequate infrastructure for effecting appropriate equipment planning, deployment of existing plants and machinery, control of inventory etc. as a result of which identification of areas of moderinisation, selection of equipments, utilization of the existing equipments including their operational and maintenance activities are much vitiated due to lack of appropriate statistics and data in the projected plans.

Overlapping of activities of various Departments/ Organizations and streamlining of domains of their activities	*2.2*		The developmental activities are decentralized through 73rd and 74th amendments to the Constitution. But the governments especially in the States have failed to create a competent structure for execution of these engineering works by Panchayat Raj institutions. It has been a very common practice in different States to entrust similar engineering activities to different departments and organizations. Such duplications are mostly done because of political exigency rather than the actual necessity. Such practices often complicate the development works due to lack of co-ordination between different planning and implementing agencies. Propensity to create new engineering cadres by splitting departments and statutory bodies created to look after certain aspects of development activities trends to generate inefficiency due to lack of experience and training of the newly recruited engineers. Besides, such practices add to extra costs to the exchequer. Moreover, such mismanagement and confusion also result doldrums. To retrieve the engineering activities from such agency oriented and uneconomic state and to make them more objective in nature, the diverse programmes on similar activities should be brought under the established line departments of the government. However, if there be any logical requirement to decentralize such works, then such decentralization should be effectively co-ordinated under the guidance of a 'Nodal' department which should exercise control over physical planning, work execution including quality assurance, financial allocation, recruitment, promotion, training as well as inter-departmental transfer and posting of technical and non-technical personnel. This will help curtail wasteful expenditure on development activities.
Diverse nature of rules, codes and procedure in different departments &streamlining of the same	*2.3*		Different codes, rules and procedures are devised by the governments for functioning of engineering departments. Besides core departments, newly created departments with engineering cadres as explained above, the undertakings and autonomous bodies have also their own set of codes, rules and procedures. The diverse characters of these rules, codes , procedures not only put the functionaries in engineering departments/organizations to confusion, but the same often provide encouragement to opportunists to resort to corrupt practices. Variation of the rules and procedures including the codal provisions often failed to be appreciated by common people, who eagerly await the benefits of the development works, thereby giving rise to discontent and frustration amongst them. Side by side the outside implementing agencies to whom execution of works are entrusted frequently fail to follow the same in a scrupulous manner which result into delay in completion ofworks , claims and consequent litigations. Interestingly these outside agencies sometimes resort to dodge the Government through the loop holes and ambiguity arising out of the diverse natures of the aforesaid rules etc. As a

			remedial measure all these rules, Codes and procedures are to be streamlined thereby making the same result oriented instead of their subjective character.
Updating of Rules , Codes and Procedures	*2.4*		These rules, Codes and procedures often bear the relics of century old ideas and approaches. The present day need of the engineering activities are hardly reflected in these codes. For delivery of fruits of development to the people in an effective, economic and time bound manner, the rules, Codes and procedures require updating at regular intervals , the periodicity of which is to be properly enquired into and evaluated in an appropriate manner.
Role of Engineers	*2.5*		Engineers are the effective tools in the hands of the nation for achieving development and advancement of the country. Their job is not only to effect the application of science and scientific principles in our life through technological innovations, but they are also indispensable for all others aspects of engineering activities so far as overall techno economic planning, scheduling, execution, completion in a time bound manner, achieving the desired result at optimum cost etc. are concerned. Engineers also accomplish the maintenance of the assets created through such activities. Propensity of the political executive to go for capital expenditure at the cost of maintenance fund has done irreparable harm to the existing infrastructure. Infrastructure required for enhancing the growth of gross domestic product whether agricultural or industrial - are also created by the engineers of various disciplines. While the development plans are to be achieved during a certain period in terms of generation of power, irrigation, construction of roads and bridges etc. engineers translate into reality such creative activities thereby helping the nation to march ahead.
Responsibility of engineers to the society and obstacles faced in discharging the same	*2.6*		The engineers have an inherent responsibility towards the society in respect of development and prosperity of the country. Some of those are the creation of infrastructure facilities, devising new technological innovations, effecting growth rate of gross domestic product , production of quality assured products to increase foreign trade and export of technical expertise thereby helping the country to earn foreign exchange to provide to the people better way of life through technological development etc. While Engineers have professional responsibility for betterment of the country and upliftment of economic standard of the people, the present administrative set-up, a legacy of British Colonial administration both in the States and at the Centre as well, does not provide to the engineers and for that matter the members of functional services the appropriate authority and status at different levels, absolutely necessary for discharging these duties. It must not be lost sight of that authority and responsibility go side by side as one is complementary to the other.
Inadequate	*2.7*		It is often found that engineers are still victim of an

deployment of technical expertise by deploying non-engineers to works of engineers			*apartheid policy*at the policy making level.An engineer irrespective of his knowledge and command on his subject hardly given any chance to help the government to frame a sound policy. Such erratic approach towards the development of the country through advancement of technology will put the country astray at the cost of its economic prosperity. The recent census reports revealed that large no of engineers are without proper employment. These reports point to serious mismatch between the number of graduate engineers passing out from the engineering colleges in the country and employment available to them. It is also widely reported in the media that large sections of engineers passing out from the engineering colleges are qualitatively not employable by the Industry and the Government. This is a serious problem indeed and requires remedy. **To set right the engineering activities from this disastrous state, suitable enactment are to be made by the government so that i) engineers and technologists are also registered before they can embark into professional activities involving works of an engineer, like architects, doctors and lawyers and ii) no person other than registered engineers/technologists are allowed to perform the functions of engineers / technologists. Such enactment should also provide apart from statutory registration of the engineers, the independence of the engineers in the field of technical activities taking place under the government so that engineers and technologists have last say in the matter relating to engineering activities.
Administering engineering secretariats by placing generalists in key posts and evils thereof	***2.8***		In many engineering technical departments the overall responsibility is mostly vested upon generalists instead of placing the engineers in the foremost position though engineers are responsible for satisfactory performance of such departments. Moreover, in decision making key post so far as these engineering department are concerned, placement of engineers is of paramount importance to give the department appropriate speed and direction. Further, government in our country has not yet been able to provide adequate career values to the engineers. This resulted not only in widespread fail discontent among engineers in these departments but also attract talented engineers. It is our recent experience that talented engineers often prefer to join Indian Administrative Service for the career value and perquisites it provides to its members. Unless immediate corrective steps are taken by the government in respect of aforesaid discrepancies, it may not be possible for us to keep pace with the technological development and advancement taking place in other countries.
Improper evaluation of role and status	***2.9***		It is high time for the government to look into to the problems of engineers and the bottlenecks in execution of engineering activities seriously and to take remedial measures thereof. In doing so amongst others, the role of engineers is to be properly assessed is a welfare State like

of engineers			ours. It is also equally necessary to give due and serious consideration in regard to manning of the engineering departments and organizations so that the overall responsibility of their activities are entrusted to engineers and technologists at appropriate levels with necessary authority compatible to such responsibility . Further to avoid brain-drain to foreign countries from amongst engineers and technologists as well as to attract talented engineers into the government service it is very much necessary that career value of engineers should be attractive and at par with others in Indian Administrative service. Administrative Reforms Commission (1969) remarked that "a system which supports superior status assumed by a generalist elite does not adequately recognize the need for greater scientific or technological content in administrative thinking essential in welfare set up and developing economy". Keeping the precise import and purport of this statement in the back ground, the career value of the engineers must be adequately evaluated befitting with their role in an welfare state. Even if the career value of engineer be not possible to be placed above that of his generalist counter-part belonging to the IAS Cadre due to financial constraint, the government which has embarked on a comprehensive programme of development and accepted the technical progress in its widest sense as the major aim of policy, should not still continue to accord lower career value to engineers and technologists.
Need for regular review of engineering cadres	*2.10*		Since past few decades engineering posts in lower levels have inappropriately been increased in comparison to corresponding post in higher levels. Such irrational set up is taking place due to inclination on part of the government and administration to impart solutions to the needs of increased engineering activities in an ad-hoc basis on the plea that financial constraint does not permit increase in proportional manner the posts at senior levels. Such adhoc and irrational pleas has given rise to serious problems creating set back in development works. Due to such faulty steps firstly engineers in lower levels suffers from stagnation in promotion and secondly when they reach senior level after undue delay , they are to shoulder disproportionate responsibility in the senior posts due to lack of proportionate number of posts in senior level and cannot do justice to the greatly increased volume of works, not compatible to a single post. As a result, supervision and management of the works, the primary duty and responsibility at senior levels, cannot be exercised in a persuasive manner. Alongside discontent creeps in the mind of senior functionaries of engineering departments due to enormous worked. Simultaneously engineers at relatively junior levels suffer frustration on account of stagnation for years in same post without any promotion. To retrieve the whole situation from this dangerous state, regular

			periodical review of the cadre of engineers at each level is to be made in a pragmatic manner by a technical body on the basis of workloads, needs of the development programmes, comparative numerical strength of posts at different levels and the multifarious duties and responsibilities attached to such posts.
Set back of engineering activities due to inadequate financial grants	***2.11***		When even other factors get appropriate speed and direction, inadequate financial grant often cripple the development activities. Over and above with the multiplicity of organization engaged in similar activities the expenditures on account of establishment charges frequently assume a disproportionate dimension. This result is of works getting serious setbackedwhich cause delay in completion of works and consequent rise in cost of projects. To obviate these difficulties alternative and adequate financial allocations should be made. Simultaneously the establishment are to be properly reorganised by diverting surplus personnel to new projects.
Improper maintenance of assets created through engineering activities	***2.12***		Engineering activities under the government, mainly create except production of defence requirements and Assets so created require proper maintenance and upkeep so that the usefulness of the same are not to deteriorate with the passage of time. But unfortunately while ample stress is given for the creation of fresh assets, inadequate attention is given towards their upkeep of assets already created which in the long run not only fail to cater the needs of the people. To get rid of these problems precise statutory rules are to be developed for need based upkeep of these assets after making necessary technical evaluation of the principal features of such assets including the related data available from similar assets of our country or of the foreign nations as may be necessary.
Incorrect planning and constructional activity due to unscientific maintenance of records and need for computerized data base and data bank	***2.13***		Plans, programmes and constructional activities are largely guided by the available data, present and past records, Formulation of project reports and execution of works are often dependent on socio-economic considerations as well as techno-economic evaluation of present needs and past records in respect of performance of similar earlier and ongoing projects. For making available these voluminous data as well as for logical evaluation and analysis of the same, the concerned departments normally depend on various reports prepared and published by the department itself and or by other sister departments /organizations. Preparation of such reports from the records are not only time consuming affair but the same often do not correctly indicate the actual state of affair. For this purpose such departments must have their own computerized data base coupled with appropriate hardware as well as software

			devices for generation of necessary reports on the basis of data-base so maintained and updated regularly. The system can be further improved by having centralized and regional Data Bank to which the departments may have easy access through their own terminal end.

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CHAPTER – III

THE NEED FOR AN ENGINEERING COMMISSION

For making enquiry into any definite matter of public importance it is needed to constitute a Commission	*3.1*		If the Government is of the opinion that it is necessary overhaul the engineering set-ups in the government and local self governments, undertakings, statutory bodies of State and Central Governments then a commission may be appointed by notification in official gazette in terms of "The Commission Inquiry Act 1952"(Act No. 60 of 1952 of the Indian Parliament) for the purpose of making an inquiry into any definite matter of public importance of the Central Government if the matter is relatable to any of the entries enumerated in List I or List II or List III , such lists being the lists appearing under the Seventh Schedule of the Constitution of India provided that the matter being same, no State Government shall, except with the approval of the Central Government.
As engineering activities have grown up without following a definite system, the commission is to recommend to the Government guidelines for betterment of engineering activities.	*3.2*		With the advancement of science, the engineering activities have also increased in every dimension perhaps in a bigger proportion thereby necessitating deployment of a large force of engineers and technologists who are the spearheads in engineering activities. With enormous growth of development activities, manpower planning o the engineering departments was hardly done. As a result, these technical departments grew in haphazard manner without any manpower planning. Career planning for the newly recruited engineers was also overlooked. Necessity for examining the engineering setup of in government, its statutory bodies and undertakings was long overdue. An Engineering Commission which is supposed to go deep into the inadequacies of the engineering setup can come out with necessary recommendations concerning the engineering setups to overhaul it, long term and short term measures to bring back the excellence they were once proud of the Commission will have to undertake detailed studies into the maladies that ail governments engineering/technical departments and recommend to the government of the inevitabilities for the excellence or lack thereof in the engineering profession and its effect on socio-economic development and progress of the country as a whole. A Commission will also be required to examine as to how the devoted engineers can bring plenty and

			prosperity to the nation and attention required on part of the government towards the engineering professionals in service of the government and to the people so that the heir services and capabilities are fully utilized.
The Commission to recommend about the status of engineer	*3.3*		The recommendations of the proposed Engineering Commission, if implemented in true spirit, will be enjoyed by our posterity for decades to come provided the commission is given a free hand to collect, analyze and find suitable and pragmatic solutions to problems that all the technical departments mentioned above in an atmosphere not influenced by vested interests in the administration. If everything goes in right direction, it is expected that the government may be provided with ways and means by the Commission to provide to the serving engineers power, status and career value they deserve to perform at the highest level of their capabilities.
The recommendations of the commission will hasten up the development in all spheres	*3.4*		The well-meaning recommendations of the proposed Commission towards identifying the problems related unplanned technical manpower, inadequate career progression at early stage of service, enormous responsibility at higher level of the Engineering cadres, deliberate exclusion of technical views at the stage formulation of policies related engineering works etc., will be immense when viewed in the context of the far-reaching prospects of science and technology in day to day life for years to come. It is expected the benefits so derived out of the engineering commission, if the reports of the commission is accepted and implemented by the government will hasten up the development activities and allow the same to percolate to every strata of the society in an even manner. It is also expected that with the upliftment of engineering profession and engineers as a whole, the advancement of engineering and technology will be accelerated thereby opening new avenues through which engineering activities with proposer without any hindrance. This will also lead to flourishing of the growth of domestic products both qualitatively and quantitatively where upon import will decrease and export will increase. It will also help us to solve the burning problem of unemployment with which the planners of the country are much obsessed. In a developing country like of ours, export of engineering commodities as well as expertise are of prime importance not only for thriving of the engineering industries in a healthy manner but also for earning foreign exchange which will help our industries in an immense manner. The Engineering Commission will also be able to give proper direction for streamlining and updating the engineering vis-à-vis development activities of the Government so that overall infrastructure facilities necessary for the people may flourishing in a right direction.

Recommendations of Commission may lead to new enactments which will ensure engineering and technological development	*3.5*		A question may arise whether recommendation of the Commission may be translated into action and into reality under the existing statutory provision. Perhaps it will be premature to make any comment on this issue until the proposed recommendation of the Commission is made known to us. At the same time it cannot be denied any more that while the government is duty bound toward the people for providing necessary facilities which come into being only through development activities following the progress of science and technology then perhaps the present enactments are not enough to persuade and enforce the government to resort to such activities without any delay as soon as situation calls for such activities.

CHAPTER - IV

OBJECT OF THE COMMISSION, ITS COMPOSITION AND TERMS OF REFERENCE

Objects of the Commission	*4.1*		The proposed commission should be a national Commission to be appointed by the Government of India. The recommendations and findings of the Commission should be the basis and guidelines for the Union of India as well as State governments it so far as streamlining, extending and up-grading as well as modernizing the engineering activities are concerned. The recommendation should also incorporate its findings for uplifting the status as well as service conditions of the engineers and technologists. The word status carries broad meaning and should necessarily include in this context the correct placement of engineers in the administrative set up of the government / undertaking /autonomous body. The expression also include the career value of the engineers and the same is to be examined for tenure of the engineer in different level/post and the total career as a whole. The word status is to further include the authority and power of engineer so that the same is compatible with the duty vested top the post. The object of the commission as set forth in a succinct manner in the above lines is based on the proposition of accelerated development of the country and the welfare of the people thereby keeping; ace with the advancement taking place in other countries so that the desired advancement can be brought within a specified period of time and the same is kept going with the advancement of science and technology. Keeping this object in mind, it is desirable that the recommendation and findings should also incorporate time bound direction for effecting new enactment and for amending existing one so that the recommendation of the commission can be implemented with least possible delay and the findings can be given due recognition and converted into action to bring necessary sigh of relief to the people failing which it is apprehended that the country may eb swayed from the role of a welfare state.

Composition of the Commission	*4.2*		The composition of the commission should be a broad based one consisting of engineers, technologists and scientists associated with and supported by economists, sociologists, industrialists and constitutional as well as legal expert. The Commission is to be headed by Chairperson and there should be a Member Secretary for the commission for looking into the executive works of the commission. While the Chairperson of the Commission should be an eminent engineer and or technologists of national repute , the Member Secretary should be an engineer employee under the government and both of them should possess wide exposure in the field of engineering activities vis-à-vis the development of the country as a whole, role, duty and responsibility of the engineers and the corresponding authority and independence vested upon them including their recruitment and status in the administrative set up as well as in the society. Each State/Union Territory must be represented in the commission through an eminent engineer or technologists. In addition there should be further members at least two in number each from the profession of economist, sociologists, industrialists and legal expert well conversant with the Constitution of India to be nominated to the Commission by the ministry /department appointing the commission.
Terms of reference of the Commission	*4.3*		Terms of reference of the Commission should be as follows :-
		a)	To redefine the role, duty, authority and responsibility of engineer in each post with special reference to the development of the country and engineering activities entrusted to the government -be State or Central.
		b)	To identify afresh separately engineering activities entrusted and discharged by the Central as well as State Governments and to suggest method and guideline to streamline such activities so that the same are not carried out by non-engineering departments and become more economic, result oriented and compatible with the basic needs of the people as well as development and advancement of the country.
		c)	Objective review of the engineering activities in the backward areas of the country and or areas whose geographical configuration and perpetual exposure to the hazards of nature bring extreme hardship to the local people thereby creating bottlenecks in their prosperity. Along with such review suggestion is to be made in respect of new dimension of such activities and or extension of the of the same so that the said areas are brought at per with the rest of the country so far as overall developments are concerned.

		d)	Examination and scrutiny of the existing diverse engineering activities in the rural areas and to redefine and or regroup such activities under one umbrella and to suggest creation of new activities or extension of the existing ones for quick upliftment of the rural areas.
		e)	Review the existing rules, procedures, codes and practices of the engineering departments of the government and to recast, modify up-date and streamline the same so that the out-dated directives make room to the new ones thereby making the same more pragmatic and objective in nature by wiping out the causes for which works are delayed due to complexity of the rules, codes, procedures etc. etc. and simultaneously the new/modified rules etc. should plug the loop-holes through which abuse of power takes place.
		f)	Identification of steps to be taken to give appropriate status to the serving engineers under the Govt. with special reference to the administrative set up and career values including the comparative pay structure in different levels.
		g)	Reviewing and restructuring of the engineering department and or organizations under the Govt. so that the engineers technologists can play much needed role of fore-runner in the development activities starting from formation of policies ending into execution of works needed for translating the policies into the action.
		h)	Review the recruitment and promotion policy of the engineers including their discipline-wise streamlining and cadre-wise incorporation under the government.
		i)	Formulation of policies for the periodical review of the engineering cadres in order to make most efficient and best use of the engineers keeping in view that stagnation in promotion may not attract talented engineers to the government service as well as retard the efficiency and dedication of the existing ones.
		j)	Lay out scheme for institutionalized in-service training of the engineers both on initial entry into the service as well as periodically during the service career.
		k)	Review the service condition as well as all types of service rules for effecting better personal management so far as engineers are concerned and to suggest guideline so that there may be uniform rule under all governments.
		l)	Formulation of effective steps so that engineers are not heckled by others in course of discharge of their duties keeping in view that such eventualities may break the morale of engineers fighting for the development of the country against highly odd situation.
		m)	Identification of new engineering activities and infrastructures necessary for developing a centralized and regional Data Bank within a specified time for facilitating the engineering planning and executing of constructional activities thereby suggesting procedures for formation of department-wise computerized data-bases well as for generation of reports from said data-base.
		n)	To review the existing planning, monitoring, design, research and development facilities of the engineering department and to recommend corrective measures thereof.

		o)	Review the existing procedure for purchase, deployment planning and upkeep of machinery and equipment including their monitoring and inventory control for making best use of the same specially in the wake of optimum mechanizationbeing inducted in constructional activities to make the same economic, quick and quality oriented.
		p)	To review the existing system and set up of engineering and technological education and to suggest measures thereof for improvements of the same with special reference to streamlining and rationalizing engineering and related education throughout the country both from qualitative and quantitative points of views indication therein necessary safeguard for checking mush room growth of ill equipped engineering institutions.
		q)	To review the existing rules and procedures pertaining to enquiries and disciplinary proceedings and to suggest improvement thereof indicating there in amongst others the safeguards for engineers against institution of enquiries and disciplinary proceedingwithout any basis and related harassment thereof arising out of false charges and undue delay in completion of enquiries and disciplinary proceedings.
		r)	To suggest ways and means including mode for identification and removal of public grievances in an effective and quick manner so far engineering development activities are concerned.
		s)	To review the present system of development of rural areas and to suggest improvement thereon including making the assets created under “PradhanMantri National Rural Employment Guarantee Scheme” and “JawharRojgarYojna” under the direct supervision of “Panchayet Raj” institutions are compatible with the overall infrastructure in the rural areas.
		t)	To review the present system and scope of utilization of engineers and to suggest improvement thereof indication steps to be taken for mandatory deployment of diploma and or graduate engineers, as the case may be, in works relating to development of infrastructure engineering industry and other engineering and or technological activities fixing therein parameters beyond which deployment of engineers of various disciplines and qualification will be made compulsory.

		u)	Methodology to create awareness about quality assurance among the engineering/technical departments, statutory bodies and undertakings and incorporation of the same at planning stage as well as during work execution.

CHAPTER - V

LOOKING AHEAD

Fruits of Engineering Commission	***5.1***	Engineering and Technological advancement of a country is an index of its development. Engineering feats and technological brilliance helps the people to meet their basic needs in a comprehensive manner. To achieve this much cherished advancement towards the zenith, the recommendation of the proposed "Engineering Commission" will give a big boost to our efforts. The fruits of the commission will sow the seed of accelerated advancement of engineering and technology and will facilitate the nation to reap the rich harvest of technological excellence within a decade or so.
Engineering Commission will provide right direction in the advancement of engineering and technology	***5.2***	In the *northern part of the globe the* countries with developed economy are marching towards the 21st century accompanied with the help of engineering and technology which will culminate ultimately into a technological revolution in its widest sense. In our country, unfortunately, the fruits of technological advancement cannot be translated into reality within a fixed time-frame with colonial administrative structure dominated by 'generalist' which does not allow engineering and scientific inventions and innovations to fructify in the fields of development with the speed necessary to achieve he broad development goals of the welfare State. No wonder that the developed counties imposes terms and conditions while transferring their technologies in various fields. The ill-effects of the 'Dunkel Proposals' imposed on us at Gatt Conference in Uruguay are difficult to forget. The country has got the technical potential to provide to the people at large electricity, fresh water, durable and smooth road net-works, speed and ease in communication systems, as well as relief from draught, flood, housing problems etc. The out-moded administrative structure is one of the main causes why the fruits of scientific innovations could not be speedily showered to the people equitably. A suitably constituted Commission if allowed to function properly, can make far-reaching recommendations to the government not only in restructuring the public administration related to implementation of various developments projects but also throw light on the plight of the members of technical services so far as their career value, career progression and appropriate status at different levels of the policy making system.

Diverse & Voluminous responsibility of Engineers and actions necessary thereon	*5.3*	Performance *and excellence* of engineers of our country are under close review and critical assessment by a demanding public in far greater measure now than at any time in the past. Ever growing population, rising standard of living, growing economic activities specially in rural areas and consequent rise in the demand of better infrastructure-facilities, sophistication and effectiveness in our armory through advanced technology to provide greater striking power to the defence personnel etc. have all added new direction as well as dimension to the tasks of engineers and technologists. In the present techno-administrative set up engineers are required *more* to implement and enforce the *technical* decisions mostly coming out from *the pens of the generalists of* the Secretariats hardly having any technical expertise gained as *distinct from implementing and enforcing their own technical decision springing out from their* over years of experience in the field of technological developments. Further, the practice of subordination of the technical personnel in directorates to the secretariats mostly manned by 'generalists' *dividing line in between the objectives of the government and expectations of the ruling party often gets blurred*. This results in faulty policy and planning as consequence of which *consequently* engineers and technologists are pulled up by the public as well as politicians as engineers are the persons responsible to deliver goods to the people. For enabling the engineers to discharge efficiently aforesaid voluminous responsibility and for proper evaluation of their status and right in forming policy matters in engineering departments the government is required to make statutory provision on the basis of recommendation of the proposed commission.
Need for a commission	*5.4*	Engineering and technology play a key role in the day to day life of people whether they are rich, poor, villager or city dweller. Further with the passage of time the basic needs of the people are also undergoing changes with the advancement of science and technology. A way of life which would have been a luxurious one about a century back or so may be reckoned as one of the bare necessities. As the dimension, importance and time limit of the engineering activities as well as the nature of role, duty, responsibility, authority and status of engineers may not be static and the extent of changes in these matters depend on different socio-economic considerations vis-à-vis the technological progress achieved by the engineers. In context of the gradual varying situation the recommendations of the proposed commission will require modification with the passage of time. As such it will perhaps be wise to constitute a permanent commission which may have its recommendations reviewed and or extended with new ones at a gap of certain years to be decided by the government. In the intervening period the commission may collect relevant data regularly engage study teams and visit difference places at home or abroad to enable itself to deliberate more closely and in more detail on the terms of reference at its next sitting.

Standardisation and streamlining different Codes/ Rules & Procedures for engineering activities followed by Central/ State Governments keeping in view the advancement of science & technology	*5.5*	In our country the developments in different spheres, specially in engineering and technological arena, are taking place under the mixed economy. With induction of the concept of market economy in areas which were so long dominated by the core departments and or public sectors only, the private entrepreneurs including the foreign ones will play a definite role in near future in different engineering and technological activities including creation of new infrastructure facilities. Keeping this radical change in view, the government is to safe guard the advancement of engineering and technology so that with the infiltration of private as well as foreign enterprises the desired progress is not retarded both in terms of speed and direction due to in apt and or wrong handling of the activities. The proposed Commission may come out with definite recommendation, while deliberating on the related terms of reference, on the basis of which codes, rules and procedures may be enforced by the Government through statutory provisions so that there may not be any room for any unethical and unscientific activities in the guise of providing better service, comfort or technology etc. etc. which may endanger the growth of science and engineering in our country.
Conclusion	*5.6*	Govt. Engineers all over India are demanding for constitution of an Engineering Commission for quite some time past. The multifarious problems and hindrances in their profession and entrusted activities are causing great concern not only to the engineers and technologists but also to the progress and welfare of the State. The situation can be retrieved after detail deliberation in each issue in a scientific and logical manner which can perhaps be accomplished only by a Commission due to statutory power vested in such Commission. But unfortunately the politicians as well as the generalists sitting into helm of administration are not paying any head to such repeated demand. Though engineers even in face of constraints and difficulties, not created by nature but by administrative system itself, are trying todischarge their duties thereby giving best possible performance, a time may come in near future when the whole system may collapse owing to fatigue accumulated for years together due to such problems and hindrances. In view of this critical situation it would be wise on part of the government to act in this respect without any further delay. Let us not forget the old proverb that “A stitch in time saves nine”.

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INDIAN ENGINEERS FEDERATION (INDEF)

(Regional Federations)

INDEF (Eastern Region)

1. WEST BENGAL
2. BIHAR
3. ODISHA
4. JHARKHAND
5. ANDAMAN & NICOBAR

INDEF (North-Eastern Region)

6. ASSAM
7. TRIPURA
8. MEGHALAYA
9. MIZORAM
10. NAGALAND
11. ARUNACHAL PRADESH
12. MANIPUR
13. SIKKIM

INDEF (Western Region)

14. MAHARASHTRA
15. GUJARAT
16. MADHYA PRADESH
17. CHHATTISHGARH
18. GOA

INDEF (Southern Region)

19. KARNATAKA
20. TAMILNADU
21. ANDHRA PRADESH
22. TELENGANA
23. KERALA
24. PUDUCHERRY

INDEF (Northern Region)

25. UTTAR PRADESH
26. UTTARAKHAND
27. DELHI
28. RAJASTHAN
29. PUNJAB
30. HARYANA
31. HIMACHAL PRADESH
32. JAMMU & KASHMIR
33. CHANDIGARH

INDEF (Central Region)

Central Goverment Engineers Services

34. CENTRAL GR"A"(CPWD)
35. AIR & DOORDARSHAN
36. CWPESA
37. IDS (Defence)
38. IRSEOA
39. ITS(Telecom)
40. MoRTH
41. IRRSA

"American roads are not good because America is rich, but America is rich because American roads are good."

John F. Kennedy
(Past President,US)

" Remember, your work may be only to sweep a railway crossing, but it is your duty to keep it so clean that no other crossing in the world is as clean as yours"

Bharat Rathna

Mokshagundam Visvesvarayya

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