BACKGROUND STUDY ON
TECHNICIAN EDUCATION POLICY FORMULATION
IN PAKISTAN

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STATISTICAL INFORMATION

1. Economic Features

1.1 Total area (Sq Km) 794,630

1.2 Population (Year 1981) Millions 83.78

1.3 GNP (Year 82-83) in US$ 27,254 million

1.4 GNP per capita (Year 82-83) in US$ 312

2. Education and Training (Technical) for the latest year available.

Year. 1983....

Nature of Programme	No. of Institutions	No. of disciplines in which programmes offered	Total annual intake	Total annual output	Average Recurring cost per trainee/student	Approximate Percentage employed within one year of graduation	Approximate number emigrating for employment in foriegn countries
Vocational/Craftmen	135	32	8795	5900	Rs. 2,000	90%	1,000
Technician (Middle level)	31	18	5950	3970	5,000	80%	500
Engineering (First degree)	Univ: 4 college:1	5	14	3650	2360	10,000	80%	800

PREFACE

This study has been undertaken on the request of the Colombo Plan Staff College (CPSC) for Technician Education, Singapore. The instruments developed by the CPSC were administered to the officials at national and provincial level. Two officials at national: and eight at the provincial level were selected. The CPSC had also developed instrument for the heads of the organizations at institutional level. Seven principals of polytechnics/colleges of technology were interviewed. It was revealed that they did not have adequate insight either in the National Education Policy or in the Sixth Five Year Plan. For this reason, filling of the instruments at institutional level was altogether dropped.

The author has simply reported the findings on the basis of interviews and document analysis. Relevant extracts of the documents, i.e. National Education Policy, Sixth Five Year Plan, and Action Plan have been reproduced in the Section "Overview of Technical/ Vocational Education". These extracts will hopefully be of considerable use in comprehending and analyzing the technician education in Pakistan. Every effort has been made to present the findings in the light of instructions provided by the CPSC.

The author is grateful to Dr. Tahir Husain, Director General of the Academy for the trust and confidence

he has shown by assigning this responsibility to the author. Without his encouragement and support this study could not have been completed. The guidance provided by Mr.A.G.Mufti, Faculty Consultant CPSC; and the cooperation extended by numerous officials of the Provincial Technical Education Departments and Chairmen Boards of Technical Education, Panjab, Sind, NWFP, is gratefully acknowledged.Last but not the least, the author owes a debt of gratitude to the CPSC Singapore for providing financial support without which this study could not have been undertken.

Abdul Ghafoor

1. OVERVIEW OF TECHNICAL/VOCATIONAL EDUCATION

Since independence Pakistan has progressively built up an infrastructure for technical/vocational education and training which is school based. The present system is comprised of 40 craftsmen level institutes known as Government Vocational Institute Technical Training Centres for Boys, 95 Vocational Institutes for Girls, 69 Commercial Institutes/Colleges of Commerce, and 31 Polytechnic Institutes/Colleges of Technology (including 5 for women). It may be useful to recognize the following distinct organizational stages below professional level:[1]

Mid-Professional (Diploma) Level. This level is equivalent to the upper secondary stage where diploma level technical/vocational education is administered in institutions such as Polytechnics, Colleges/Institutes of Technology, etc offering post-matric 3 years courses in various technologies. The output from these institutions is expected to fill positio of supervisory capacity in industrial establishments/technical services etc. Additionally, Commercial Institutes also fall in this category which offer post-matric Diploma courses in commercial subjects such as accountancy, secretarial practices book keeping etc.

Craftsmen Level. This concerns the training needs of skilled workers at the level of operators (carpenters, masons, machinists, welders, electricians, etc). A variety of institutions offering post-middle and post-matric courses under different ministries/provincial departments are operating with courses of varying contents, duration and objectives. Quite a few vocational schools offer courses for girls.

Pre-Vocational Level. This level may be construed to encompass all such courses which have been introduced below matric level in various institutions with a view to acquainting the students with elementary production oriented training as an integral component of general studies such as Agro-technical courses introduced in middle and high schools of Pakistan.

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1. Report of the Working Group on Technical Education constituted by the Planning Commission, Government of Pakistan, January,1983, p.6.

1.2. In 1979 the Government of Pakistan promulgated an Education Policy which identified various problems in the technical and vocational education. Certain measures were suggested by the Policy for the improvement of the technical and vocational education. The policy statements are reproduced below[2]:-

> Inspite of several efforts in the past the technical and vocational education is still not job-oriented. Moreover, there are hardly any arrangements for identifying the needs and providing training to 80% rural population to make them more productive in order to strengthen this large sector of our economy. In order to improve technical and vocational education, it has been decided to introduce production-oriented curriculum related to the market requirements in all technical and vocational institutes. Advisory Committees having representatives of trade and industry will be constituted to keep the training responsive to the changing market requirements.
>
> All the technical and vocational institutions will be encouraged to generate funds for supplementing their resources by producing saleable goods during training. Small production units will be established with technical and vocational institutes under a phased programme. Evening programmes will be introduced in technical and vocational institutes for the benefit of the community, wherever needed. Separate vocational schools for drop-outs of the school system will also be established. Equipment needed for various levels of technical and vocational institutes will be standardized. A mechanism for standardizing, testing and certification of technical and vocational skills required through formal, non-formal or traditional system of training in consultation with trade, industry and other users of the output of these institutions will be introduced.
>
> Practical on-the-job supervised training for Diploma and B.Tech students will be made compulsory and suitable legislation for providing this training in industrial organizations and undertakings will be enacted. In order to provide close liaison with industry the teachers of polytechnics and technical colleges will be encouraged to provide consultancy and advisory services to the industry. Personnel from industry would also be invited to advise these institutions on production methods. A teacher training college for the training of teachers of technical and vocational institutes will be established at national level.

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2. Government of Pakistan, National Education Policy and Implementation Programme, Ministry of Education, Islamabad, 1979, p.38.

1.3. The Sixth Five Year Plan has laid special emphasis on an extended provision for technical and vocational training. According to the Plan, the number of polytechnics will be increased from 28 to 47; and monotechnics from 7 to 17. The output of polytechnic diploma holders will increase from 4,000 to 5,000 per year. In addition, 200 trade schools will be established which will produce 4,000 skilled workers. This number will be in addition to 45,000 skilled workers being trained in the private sector for which the Plan contemplates qualitative improvement and a system of certification which will be instituted by the National Training Board.[3] The Ministry of Education has prepared an Action Plan to facilitate the implementation of the Sixth Five Year Plan. While retaining some of the major programmes of the Sixth Five Year Plan, the Action Plan suggests certain additional programs without deviating from the overall financial provisions of the Sixth Plan. The Action Plan suggests the following programmes:-

1. Establishment of 278 trade schools against the Sixth Plan provision of 200 trade schools(278 trade schools have been suggested on the basis of one trade school in each tehsil).

2. Setting up of 278 Technical Middle Schools by addition of evening shifts in general schools. There is no such provision in the Sixth Plan.

3. Setting up of technical high schools (introduction of evening shifts in 77 general schools) which has not been provided in the Sixth Plan.

4. Opening of 19 polytechnics, which is in conformity of the Sixth Plan.

5. Strengthening of 16 polytechnics/technical colleges with the help of Asian Development Bank.

6. Opening of 10 montechnics in underdeveloped areas.

7. Introduction of evening shifts in 30 polytechnics which has not been provided in the Sixth Plan.

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3. Government of Pakistan, Sixth Five Year Plan 1983-88, Planning Commission, Islamabad, pp.346-347.

8. Establishment of production units in 50% polytechnics, i.e. 15 which has not been provided for in the Sixth Plan.

9. Provision of consumables in 15 production units before attaining self reliance which has not been included in the Sixth Plan.

10. Production of technical textbooks for polytechnics, curriculum revision.

11. Award of overseas scholarships to polytechnic teachers which has not been included in the Sixth Plan.

12. Strengthening of existing agro-technical facilities in 3,000 middle schools which has not been included in the Sixth Plan.

13. Strengthening of agro-technical facilities in 200 high schools which has not been included in the Sixth Plan.

14. Strengthening of existing agro-technical centres which have not been included in the Sixth Plan. 4

It will be observed that the Action Plan has gone a step forward in realization of the policy objectives. The Ministry of Education is endeavouring to translate the Sixth Plan into implementable programmes. The Academy of Educational Planning and Management has been assigned the responsibility of formulating projects in the light of the Action Plan which will facilitate the process of plan implementation both at National as well as Provincial level. The Action Plan has been widely discussed in the interprovincial meetings of the provincial education departments and the Ministry of Education. Since the Action Plan has been prepared within the overall financial provisions of the Sixth Plan, the Planning Commission seems to be favourably

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4. Government of Pakistan, Action Plan for Educational Development (1983-88), Ministry of Education, Islamabad, 1983.

inclined to accept such document. However, there is still some disagreement with regard to the position of the Provincial Education Departments and the Planning Departments. The Provincial Planning Departments are strictly adhering to the discipline of the Sixth Five Year Plan: whereas the Provin-cial Education Departments under instructions from the Federal Ministry of Education are emphasizing to accommodate the new programmes suggested by the Ministry of Education. This disagreement will hopefully be resolved at some higher level meeting by the Ministry of Education.

1.4. This study is intended to identify the prevailing perceptions of the term "policy" amongst concerned officials at different levels; describe the structures of the policy making bodies and the processes in operation at various levels; describe the processes adopted for needs assessment and goal formulation and the corresponding institutionalized or adhoc arrangements: identify the areas of technician education for which explicit policies exist and the perceptions such policies at different levels and amongst different operational bodies; identify the existing policies for management of change, research and innovations: identify the factors in operation which facilitate/inhibit policy implementation related to aspects like explicitness and clarity of policy statements , funding, expertise needed for implementation, resource allocation, delegation of administrative and financial powers and extent of freedom of action and decision making styles, communication, coordination, incentive and reward systems, monitoring and procedural mechanisms. The instruments developed by the CPSC were administered to the respondents and the findings reported in the appropriate sections.

2. STRUCTURE OF POLICY MAKING BODIES

Policies are major decisions taken by the national government to provide sense of direction in socio-economic, scientific, technological and political development of the country. Such decisions could be in the field of agriculture, industry, communication, physical planning and housing, education, health and numerous other fields. There are functionally distinct structures at the national as well as provincial level. Since the implementation of such national policies lie with the provincial governments, therefore, all policy decisions are taken with their active participation. Interprovincial conferences of experts are convened to thrash out various issues which need to be resolved through policy decisions.

2.2. Education has always been a provincial subject. Even the 1973 Constitution recognizes the right of provincial governments to control education. But there are certain areas of education reserved to the State in the Constitution such as Curriculum, Syllabus, Planning, Policy and Standards of Education.[5] Educational policies are initiated by the Federal Ministry of Education. These policies cover wide ranging aspects and levels of education, i.e. primary, secondary, technical/vocational, professional, college and university, etc. There is no separa organization charged with the responsibility of formulating policies for technical/vocational education. When all the levels are covered in one document, naturally they cannot be expected to be so exhaustive and elaborate to tackle numerous issues which may require detailed analysis. Perhaps this aspect is left to those who have to elaborate the policies by splitting each component of the policy into action programme supported by financial implications involved.

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5. Government of Pakistan, Constitution of the Islamic Republic of Pakistan 1973, p.45.

2.3. The Federal Ministry of Education initiates the work on policy formulation by inviting suggestions/recommendations from the provincial Education Departments, Boards of Secondary Education, Boards of Technical Educatinn, Provincial Textbook Boards, Universities and other such agencies involved in the dissemination of knowledge. All these field agencies/organizations feed the Ministry of Education with the required information on the basis of which a working paper is prepared by the Ministry of Education for consideration of Inter-provincial Conference of experts. This Conference is split into various working groups/ subject committees which submit their recommendations on various aspects and levels of education. The policy so agreed upon by the Conference is subject to the approval of the Cabinet after which it is promulgated as a national policy.

2.4. Since we are not dealing with the entire spectrum of education, we may concentrate only on the aspect of technician education. But before we move further, the term technician needs some clarification. We have to see as to whether there is any commonly accepted definition of a technician. For this purpose the question with regard to the perception of those at the supervisory level of technical education in the Federal and Provincial governments had to be ascertained.

2.5. There were ten respondents; two at national and eight at the provincial level. Out of ten, nine respondents answered the questions in affirmative, i.e. a technician is middle level technically trained supervisor between the skilled worker and engineer. The tenth respondent also supported the same definition but referred to the general impression of other people who confuse technician with skilled worker. Technicians are trained in the polytechnic institutes and colleges of technology. The relevant extract of the National Education Policy on Technical

and Vocational Education has been given in the earlier section. The Working Group on Technical Education for the Sixth Five Year Plan observed that there was no effective machinery at the national level for the purpose of policy, planning, coordination and guidance in the sphere of technical education.[6] Recognizing the validity of this observation, the Ministry of Education has created a Science and Technology Wing which has to undertake policy analysis and coordinate the activities of various agencies at national level.

2.6. Now we have to see as to how the respondents at National and Provincial levels perceived the role of various organizations in terms of needs assessment, goal formulation, policy formulation and policy analysis of technician education. Individual responses of question II.1 can be seen in Annex I. At the National level, two respondents identified Ministry of Education, Provincial Education Departments, and Planning Commission as the agencies responsible for the aforementioned activities. The respondents at the Provincial level indicated Ministry of Labour & Manpower, Directorates of Technical Education, Boards of Technical Education, Provincial Planning Departments responsible for needs assessment; whereas the goal and policy formulation as well as policy analysis were perceived as the roles of the Ministry of Education, Planning Commission, Provincial Education and Planning Departments.

2.7. In response to question II.2 there were diverse views and opinions about the interrelationship of the agencies (see Annex II) responsible for vocational education and training, engineering education, General education and higher (university level) education. At the National level, the respondents indicated interrelationship of the Ministry of Education, Planning Commission, Provincial Education and Planning Departments for vocational and

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6. Government of Pakistan, Report of the Working Group on Technical Education constituted by the Planning Commission for the Sixth Five Year Plan, Planning Commission, Jan:1983, p.14.

Technical education. At the Provincial level, almost 50% of the respondents could not indicate any relationship whereas two respondents indicated the Directorates of Technical Education. One of the respondents indicated interelationship of the Planning Commission, Ministry of Education, and Provincial Directorates of Manpower Training.

2.8. About engineering education, the national level respondents were divided. One indicated the relationship of the Ministry of Education, Provincial Education Departments and the Planning Commission; whereas the other indicated University Grants Commission as the sole agency responsible for engineering education. At the Provincial level, three respondents could not answer the question; whereas five indicated interrelationship of the University Grants Commission, Engineering Universities, Pakistan Engineering Council, Ministry of Education and Provincial Education Departments. Similarly, in General and Higher Education, the two respondents indicated interrelationship of the Ministry of Education and University Grants Commission. At the Provincial level, quite a few respondents were not in a position to indicate any inter-relationship; whereas a few indicated interrelationship of the Provincial Directorates of Technical Education, Textbook Boards, Directorate of Schools and Colleges, Universities, University Grants Commission. One of the respondents indicated that there is no coordination.

2.9. In response to the question as to what processes (procedural mechnisms) are adopted in respect of needs assessment, goal formulation, policy formulation and analysis about data gathering, data analysis and decision making. The individual responses can be seen in Annex III. At the National level, one respondent indicated that the Ministry of Education and the Planning Commission are responsible for all the steps; whereas the other respondent was of the view that the Provincial Planning Departments

quantitative needs assessment indicated surveys and statistics; and for qualitative needs assessment curriculum content and its relevance with the job market. At the Provincial level, out of eight respondents, five could not provide any answer; whereas the three indicated surveys, census, statistical data; and the Planning Commission documents for quantitative needs assessment and Results of the Boards of Technical Education as well as market survey coupled with contacts with employers for qualitative needs assessment.

2.11.Question II.5 was with regard to the process of policy formulation on issues and problems of technician education systems having implications for other systems , viz vocational education, general education, engineering education and vice versa. The individual responses can be seen in Annex V. One respondent at the National level was of the view that vocational and technician education are interlinked which are further linked with engineering education. The second national respondent was of the view that

policies are decided in inter-provincial meeting of experts. At the Provincial level, three respondents could not answer the question; whereas the other five came up with diverse type of answers. They were of the view that proposals are initiated at the Directorate level whereas decisions are taken by the Federal government. One of the respondents gave a comprehensive answer by stating that informal discussions are held at various levels by the Ministry of Education. There are inter-provincial meetings of experts and the Planning Commission as well as Pakistan Engineering Council are involved in the process of policy formulation which takes into account various levels of education.

2.12. The individual responses of question II.6 can be seen in Annex VI. The two respondents at National level were of the view that policies regarding technician education relates to technical manpower requirements of the development plans which are usually for a period of five years. Out of eight respondents at the Provincial level, five did not have the knowledge about goal setting and policy formulation. The other three indicated Five Year Plans for which projections are made by the Planning Commission. With regard to changes in manpower requirements both quantitative and qualitative, it was indicated that quantitative changes are taken into consideration in the development plans which gives the position of supply and demand. As far as qualitative changes are concerned, innovative technologies relevance of curriculum with the job market are taken into consideration. Only three respondents (two at National and one at Provincial level) could indicate changes in the school system. The two respondents at National level indicated technical streams at secondary level: whereas one respondent at provincial level indicated updating of curriculum as the factor taken into consideration in goal setting and policy formulation. The social demand depends on the requirements of technicians in the market which determines the social demand for technician education. Changes in political philosophy could not be answered by majority

of the respondents. Only one respondent at the provincial level was of the view that education policies are formulated within the context of political philosophy of a particular government. Majority of the respondents also held the view that overseas requirements are taken into consideration in goal setting and policy formulation.

2.13. From the preceding findings it may be observed that there has been diversity of views or perceptions about the role of various agencies in terms of needs assessment, goal formulation, policy formulation and policy analysis. Policies are based on certain needs and accordingly the goals are specifically determined for the policy period. These policies had been comprehensive enough to cover various levels and aspects of education including technician education. Thus the Ministry of Education has so far been playing a pivotal role in terms of policy formulation for all levels of education. The Ministry of Labour and Manpower has however taken over the responsibility for vocational training as well as manpower planning. The Manpower Ministry has constituted a National Training Board as a policy making body. As far as the manpower planning aspect is concerned, the Manpower Ministry prepared a manpower plan as a supplement to the Fifth Five Year Plan. For the Sixth Five Year Plan, ARTEP assisted the Planning Commission in making sectoral projections. These projections were also used by the Working Group on Technical Education. This indicates that manpower planning is still in its age of infancy and has yet to find a place in the socio-economic planning of the country. In terms of future requirements, the education policies are not supported by adequate data or manpower forecasts. As far as the review of education policies

is concerned, this aspect has not been given proper attention it deserved.

2.14. Planning is a distinct activity undertaken by the Planning Commission in consultation with the Federal Ministries and the Provincial Planning Departments. For the preparation of Five Year Plans, Working Groups are constituted by the Planning Commission which comprise experts in the field and representatives of the concerned Ministries/Departments. For instance a Working Group was constituted by the Planning Commission for Technical Education for the Sixth Five Year Plan keeping in view the availability of resources. Policy recommendations are also taken into consideration while formulating such plans. The policies and plans need to be widely disseminated and circulated among the concerned organizations. During the course of interviews, it was revealed that seven heads of polytechnics/colleges of technology were not adequately familiar with the contents of the policy or the plans. This role will hopefully be taken over by the National Technical Teachers Training College being set up with the assistance of the Asian Development Bank.

2.15. From the extract of the National Education Policy, it will be observed that industrial growth and technological developments have been the important factors influencing the policy. Changes in manpower requirements in terms of supply of and demand for technicians qualitatively have not been clearly mentioned in the policy document. Similarly, there were changes in the school system at the secondary level

3. GOALS & POLICIES

The respondents were asked the question whether there were such documents which explicitly state goals and policies of technician education. The response was hundred percent affirmative. In the same context when they were asked to indicate the title of such documents, out of ten, nine respondents indicated National Education Policy. One respondent inidcated Manual of Standards for Polytechnics. From among the 9 respondents, six respondents also indicated the Sixth Five Year Plan. Two respondents indicated the Action Plan which has been prepared by the Ministry of Education as a supplementary document for the implementation of the Sixth Five Year Plan. The cumulative responses of the individuals can be seen in Annex VII. It seems that the respondents both at national and provincial level were aware of such documents.As far as their use is concerned, three respondents indicated their frequent use; six used them sometimes; and one did not use it at all. Regarding their review, nine respondents were of the view that review is not applicable; whereas only one respondent indicated its review sometimes. Four respondents including the two at national level indicated their publication whenever necessary; five held the view that it is published once in five years (referring to the Sixth Five Year Plan); and only one respondent did not mention anything about it. The cumulative individual responses can be seen in Annex VIII.

3.2. Cumulative individual responses to question 1.7 can be seen in Annex IX. It will be observed that the two respondents at the national level had identical views about the extent of specificity

and adequacy of these documents. Both the respondents rated the extent of specificity and adequacy for the aspects listed from 2 to 9 as average; whereas the first aspect, i.e. training technician manpower for the different economic sectors of the country as high both in terms of specificity as well as adequacy. Majority of the respondents at the provincial level rated this particular aspect either low or average; whereas only two respondents rated it as high in terms of specificity and average in terms of adequacy. Majority of the respondents at the provincial level rated the aspects from 2-9 either low or average in terms of specificity; and low in terms of adequacy.

3.3. As far as the extent of fulfilment of certain features of the existing policy are concerned, the individuals were asked question I.8. Cumulative individual responses can be seen in Annex X. There were diverse views both at national as well as provincial level. At the national level, one respondent rated the extent of fulfilment of features 1,3,4,6,8,9 as average; and 2,5,7 as high. Another respondent rated features 7,8,9 as none, 1,2,3,4,5 as moderate. The most striking thing is that feature 9 regarding clear indications of data banks/information systems extent of fulfilment has been reported as nil. Similarly, the extent of fulfilment of monitoring mechanism has either been rated none or moderate. Three respondents have rated the extent of fulfilment of features 2 & 5 as high. Feature 2 is about the clear idea of qualitative need; whereas feature 5 is about the clear directions to implementors. Of the three respondents, one is at national level and two at provincial level. As far as perceptions about the policy are concerned, the respondents were asked question II.8, i.e. what are your perceptions of the term "policy"? What is its purpose, what elements should it contain? There were varied answers to the question which can be seen in Annex XI. If we undertake the content analysis of various statements given by the respondents, we find that policies have certain goals and objectives in view for the realization of which there should be clear instructions to the implementors.

3.5. We have indicated critical priority areas with curriculum development at the top followed by interface with industry, new programmes in emerging technologies, staff development and appraisal in descending order. The respondents were asked question 1.3 to give one example of an existing policy statement for the three critical priority areas. Cummulative individual responses can be seen in Annex XIII. Though new programmes in emerging technologies has third position, there is no such statement either in the National Education Policy, or in the Sixth Five Year Plan lending support to individuals perceptions. From Annex XIII it will be observed that staff development and appraisal, curriculum development, and interface with industry have been referred to by majority of the respondents. Relevant policy statements are reproduced below:-

> Curriculum Development ... In order to improve technical and vocational education, it has been decided to introduce production-oriented curriculum related to the market requirements in all technical and vocational institutions.
>
> Interface with Industry ... Practical on-the-job supervised training for Diploma and B.Tech students will be made compulsory and suitable legislation for providing this training in industrial organizations and undertakings will be enacted. In order to provide close liaison with industry the teachers of polytechnics and technical colleges will be encouraged to provide consultancy and advisory services to the industry.
>
> Staff development and Appraisal. A teacher training college for the training of teachers of technical and vocational institutes will be established at national level.

3.6. The problems/issues/needs necessitating the formulation of policy were identified by the respondents in response to question II.9. Cummulative individual responses can be seen in Annex XIV. The problems/issues identified by the respondents

which necessitated the formulation of policy in the aforementioned areas are given below:-

1. Curriculum Development

a) Lack of relevance with the job requirements;
b) Lack of practical training and adjustement of product in the market.
c) Changes in modern technology;
d) Need for a correlation

2. Interface with Industry

a) Lack of contact with the employers;
b) General acceptability of the product in the Market;
c) Growing complexities of new equipment.

3. Staff Development & Appraisal

a) Shortage of qualified technical teachers;
b) Need for developing the pedagogical skills of teachers;
c) Updating of teachers.

3.7. The respondents were asked about the mechanism to determine the qualitative and quantitative dimensions of the problems/issues/needs in the three Areas prior to the formulation of policy. Cummulative individual responses can be seen in Annex XV. It will be observed that qualitative and quantitative dimensions of the problems emerged from the delibrations of Interprovincial meetings of experts, demand from the employers for practical oriented curriculum, working group on Technical Education, survey reports of shortages in the critical areas and quantitative expansion of the technical/vocational Institutes.

3.8. The preceding findings indicate that the goals/policies of technician education are determined by inter provincial group of

experts. The critical priority areas on which emphasis is laid are: curriculum development, interface with industry, staff development and appraisal. Policies, as mentined earlier, are broader guidelines and there are plans which carry out policy decisions. Extent of specificity, adequacy, and fulfilment has been rated either low or averaqe by the majority of respondents. This is because of the reason that policy provisions are further supported by plans which do not provide adequate funds for the realization of the stipulated goals or objectives. Moreover, there has been the problem of interface with industry which is an institutional or legal constraint. To overcome this problem, the provincial governments are in the process of enactinq laws whereby the interface with industry could be further developed. Another noticeable aspect is that majority of respondents have indicated new programmes in emerginq technologies. Althouqh specific mention about such technologies does not appear in the Sixth Plan, hopefully they will be considered while detailed projects for settinq up of new technician institutions are formulated. The data bankinq system has not been developed to the extent that it could lend sufficient support either in policy or plan formulation. For instance trainina technician manpower for the different economic sectors will be possible when their needs are properly determined on the basis of certain concrete evidence or information and accordinqly the supply is ensured for each sector of the economy. Though rural development has been emphasized in the National Education Policy, it has yet to take roots.

4. PLANNING PROCESS

Planning is a distinct activity undertaken by the National Planning Commission in consultation with the Federal Ministries and Provincial Planning Departments. Expert advisory groups are constituted by the Planning Commission whose recommendations are taken into consideration at the time of formulation of the Plan. The Plans are broader guidelines in the light of which the provincial planning departments and the federal ministries develop their programs/ projects. So far the Planning Commission has been producing medium term, i.e. Five Year plans. There have been successive five year plans with a non-plan period from 1970 to 1977 when the country resorted to annual plans. Currently, the Sixth Five Year Plan (1983-88) is under implementation.

4.2. Forecasting of manpower requirements is done for the five years plan period which has its limitations and constraints. In 1967, long term manpower requirement projection for 8 non-agricultural sectors of economy were made for the period 1961-1985 but they were not reflected in the Third and Fourth Five Year Plans. Another attempt made by RUUD and KARWANSKY for such projections, did find recognition in the Fourth Plan but being of aggregate nature and lacking necessary details, remained mainly of academic interest. Nevertheless, Pakistan's various socio-economic development plans did contain estimates of labour force, unemployment and increases in employment but no figures for further sectoral composition of employment were made available except for some specific manufacturing sectors and few specialized groups, such

as engineers, doctors, teachers, etc., scattered around sectoral projects. No plans could give detailed analysis of manpower demand and supply situation and expected imbalances in terms of detailed occupations and skills.[7]

4.3. In 1979, the Manpower Division undertook an exercise to prepare comprehensive estimates of manpower availability, requirements and imbalances in 105 occupatonal groups, keeping both the domestic and foreign job market in view. The exercise was conducted in the context of the Fifth Five Year Plan but the results were published only in late 1981, when these could not be meaningfully used for mounting manpower development programs as an adjuct to the Fifth Plan projects. There are also limits on the reliability of these estimates due to some technical reasons and inadequacy of data. Nevertheless, it must be recognized that there are always serious constraints on most manpower planning exercises and a high degree of accuracy cannot be expected firstly because variations in employment patters are difficult to predict and secondly there is no close relationship between the type of education and skills one receives and the jobs he performs. Further, changes in priorities of developmental activities and consequential changes in investments, which may take place during annual planning exercises could significantly distort the projection. Preference of individuals for jobs is

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7. A.G.Mufti, "Background Paper on Requirement of Manpower for Various Levels of Technical and Vocational Education/Training during the Sixth Plan" in Report of the Working Group on Technical Education, p.cit, p.56.

another critical factor as it is not possible to force human beings into occupational slots. Above all, the accuracy of all such estimation is highly dependent upon data base which unfortunately is still not very sound in Pakistan. The only way out is to assess manpower situations on sustained basis instead of sporadic exercises and attempt "rolling" forecasts annually to make necessary adjustments.[8]

4.4. As far as the target setting and programming is concerned, these are distinct activities undertaken by the respective agencies. The Planning Commission usually sets the targets for the realization of which the Federal and Provincial administrative agencies develop the programs/projects which are subject to approval by the Provincial Planning Departments/ Planning Commission. According to the Sixth Plan, the existing number of poly/monotechnics will be increased from 34 to 63; the intake capacity from 5,950 to 7,425; and enrolment from 17,320 to 20,950. This means that 29 additional poly/montechnics will be provided during the Sixth Plan period to increase the intake capacity by 1,475; and enrolment by 3,630. For the achievement of these targets, the respective provincial education departments have to develop workable programs/projects for clearance by the respective provincial planning departments. Though the targets are clearly stipulated in the Plans, yet there are often shortfall of resources which consequently

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8. A.G.Mufti, op.cit, p.57.

give a setback to the policy and distorts the plan objectives.

4.5. For ascertaining the perceptions of the individuals at National and Provincial level, questions 1.4,II.6, II.9, and II.10 of the instruments were administered. Their cumulative responses could be seen in Annex VI, VII, XIV, and XV. The two respondents at National; and four at Provincial level indicated Sixth Five Year Plan. It seems that 50% of the respondents at the Provincial level did not have any idea about the Sixth Plan. In response to question II.6, two respondents at National level; and three respondents at Provincial level could refer to the development plans. With slight marginal deviation, there seems to be consistency in the responses. The other two questions, i.e. II.9 and II.10 seems to have relevance with the policy rather than planning process or target setting. However, the planning process has been explained on the basis of document analysis. It may also be mentioned here that the respondents at the provincial level are people who may have to develop programs/projects but not directly involved in the planning process where the Provincial Planning Departments have more active role. As far as the quantitative dimensions are concerned, these have also been explained in the light of the existing documents.

5. IMPLEMENTATION

In order to ascertain the perceptions of the individuals about the implementation of the policy, questions I.9, I.10, and I.11 of the instrument were asked. The cumulative responses of the individuals can be seen in Annex XVI. It will be observed that majority of the respondents rated their level of satisfaction either low or average. Only one respondent at the provincial level rated it high. Policies as perceived by the individuals are broader guidelines which have to be translated into action programmes. Plans are elaborate instruments to translate the policies into action programmes. But even the plans are not properly implemented as the shortfall of resources have always been the chronic problem. Some of the factors which facilitated or inhibited policy implementation are covered in the next question.

5.2. Majority of the respondents perceived the explicitness and clarity of policy statements, availability of expertise for implementation, and coordination as the factors facilitating the implementation of policy. Availability of adequate funds and timeliness, motivational level of concerned staff, incentive and reward system as inhibiting factors in the implementation of policy. Teaching is the least attractive profession and especially for graduate engineers who prefer to work in other administrative departments rather than education. Keeping in view the importance of technician education

and its contribution to enhance the level of productivity it is necessary that motivational level of the teaching staff is appropirately increased by providing incentive and reward system so that talented graduates are attracted towards teaching profession.

5.3. In order to ascertain individuals perceptions about the current level of strength of linkage between aspects related to policy, question I.11 was asked. The cumulative individual responses can be seen in Annex XVI. It will be observed that majority of the respondents have rated these aspects either low or average. No one rated these linkages as high.Though the linkages between needs assessment and policy formulation; or goal formulation and policy formulation may be high, but aspects listed as 3-7 could be rated low. Policies, as mentioned earlier are formulated by the Ministry of Education; plans by the Planning Commission but the availability of resources either for the plans or policies are determined by the Ministry of Finance. At the time of budget allocation the education sector has to compete with other sectors of the economy. Thus whatsoever sound the policies or plans may be, they are rendered ineffective in view of the demand from other sectors.

5.4. Monitoring, review and evaluation are the weaker links of the policies. These aspects have rarely been recognized in the administrative set up . The Planning Commission has a monitoring wing, but even this Wing has a restricted role. Only those projects are monitored which are costly, i.e. more than Rs.50 million. A large number of projects are thus neglected which

consequently linger on for years. This delay in the implementation of projects escalates their costs and render them ineffective. Though the National Education policy was promulgated in 1979, yet some of the respondents at national level considered it premature to undertake policy review. Review could also be meaningful if the information fed into the centres of policy decision making is timely, accurate,and valid. Perhaps it will take some time to develop a sound information system which may facilitate policy formulation, policy implementation and review.

6. MONITORING & REVIEW

From Annex VII it may be observed that majority of the respondents indicated National Education Policy which contains a section on Technician Education. This Policy was formulated on the basis of recommendations of the National Education Conference held in 1978. The draft work plan of the Policy was presented to the Cabinet in December, 1978 which was referred to the Cabinet Committee for further examination. The Work Plan was thoroughly studied by the Cabinet Committee in consultation with the provincial governors, provincial education advisors and secretaries, Vice-Chancellors, representatives of the Pakistan Medical, Engineering, Bar and Agricultural Councils in addition to other eminent educationists.[9] The Ministry of Education prepared an implementation programme with financial implications involved. No institutional arrangement was conceived for the implementation of the National Education Policy.

6.2. The role of monitoring and review could have been assigned to the National Education Council which was conceived by the National Education Policy. According to the Policy, the objectives of the N.E.C.were as under:

i) To evaluate performance and achievements in the field of education in Pakistan.

ii) To serve as a "Brain Trust" Thnik Tank on education for consultation on various educational problems and issues.

9. Government of Pakistan, National Education Policy and Implementation Programme, Ministry of Education, Islamabad, 1979, pp.iii-iv.

iii) To advise the government on changes in educational programmes consistent with changing needs and aspirations.

iv) To carry out a nationwide survey on curriculum and in the light of the findings to make recommendations to the Government.

The Council was conceived as a non-Government autonomous, self governing body with consultative functions. According to the Policy, the Council was to be headed by an eminent educationists. However, it was realized that with the President as head of the Council, its stature may be enhanced. Though its stature has been enhanced, yet it has become difficult to convene the meetings of the Council because of the engagements of the President. The Ministry of Education is endeavouring to activite the National Education Council so that it may have the required impact on qualitative improvement of the education in the country. In addition, the National Education Policy envisaged the setting up of a National Academy of Educational Planning and Management to impart in-service training to the supervisors/managerial personnel. The Academy became operational in Feb:1983. Though the Policy did not visualize the monitoring and evaluation role of the Academy, yet, the Ministry of Education has assigned this role to the Academy which will hopefully provide an institutional framework for monitoring and evaluation of future policies/plans.

6.3. In response to question 1.6 (see Annex VIII), majority of the respondents held the view that review of the policy was premature or not applicable. The extent of fulfilment of certain features of the policy (question I.8, Annex X) were either missing or rated moderate by majority of the respondents. Monitoring of implementation and policy review (question I.11, Annex XVI) has been

of Education at Allama Iqbal Open University has recently been converted into National Institute of Education and Research. It is hoped that the Institute will come up to the expectations, but it has to be strengthened and developed further. We are not quite sure how far this institute or any other institute could respond to the challenge in view of the constraints such as the graduate engineers/technicians who prefer to work in the field or aspire for overseas employment. Perhaps this vaccum could be filled by the NTTTC which needs to be completed on priority basis.

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10. Government of Pakistan, National Education Policy, op.cit, p.92.

ANNEXURES

ANNEX -I

INDIVIDUAL RESPONSES TO QUESTION II.1

Respondent No.	Needs Assessment	Goal Formulation	Policy Formul:	Policy Analysis
N.1	M.O.E. P.E.D. P.C.	M.O.E. P.E.D. P.C.	M.O.E. P.E.D. P.C.	M.O.E. P.E.D. P.C.
N.2	M.O.E. P.E.D. P.C. B.T.E.	M.O.E. P.E.D. P.C. -	M.O.E. P.E.D. - -	M.O.E. P.E.D. - -
P.1	M.O.E. P.C. M.O.L	M.O.E. P.C. M.O.L	M.O.E. P.C. -	M.O.E. P.C. -
P.2	M.O.L P.E.D.	M.O.E. P.E.D.	M.O.E. P.E.D.	M.O.E P.E.D.
P.3	None	None	P.E.D.	P.E.D.
P.4	P.C. P.P.D P.E.D.	P.C. P.P.D -	M.O.E. P.E.D. -	M.O.E. P.E.D. -
P.5	P.E.D. P.P.D.	P.E.D. -	P.E.D. -	M.O.E. -
P.6	P.C. P.P.D.	None -	P.C. -	 -
P.7	P.C. M.O.E. P.P.D. P.E.D. B.T.E.	P.C. M.O.E. P.E.D. - -	P.C. M.O.E P.P.D. - B.T.E.	P.C. M.O.E - - -
P.8	None	None	None	None

Abbreviations: M.O.E.(Ministry of Education); P.E.D.(Provincial Education Department); P.C.(Planning Commission); B.T.E.(Board of Technical Education); M.O.L. (Ministry of Labour & Manpower); P.P.D. (Provincial Planning Department).

N.B. Directorates of Technical Education fall under the Provincial Education Departments, therefore PED have been indicated rather than Directorates of Technical Education.

ANNEX - II

INDIVIDUAL PESPONSES TO QUESTION II.2

Respondent No.	Voc & Tech Education	Engineer-Education	General Education	Higher Education	
N.1	M.O.E. P.E.D. P.C.	M.O.E. P.E.D. P.C.	M.O.E. P.E.D. P.C.	M.O.E. P.E.D. P.C.	
N.2	M.O.E. P.C. P.F.D. P.P.D.	U.G.C.	M.O.E. U.G.C.	M.O.E. U.G.C.	
P.1	No relationship	U.G.C. P.C.	Nil	U.G.C. P.C.	
P.2	D.T.E.	E.U. B.T.E.	D.T.E. T.B.B.	D.T.E. T.B.B.	
P.3	D.T.E.	E.U.	D.O.S. D.O.C.	Universities	
P.4	P.C. M.O.E. P.D.O.M P.T.	P.E.C. U.G.C. M.O.E. P.E.D.	M.O.E. P.E.D.	U.G.C. M.O.E.	
P.5	-	-	-	-	
P.6.	-	-	-	-	
P.7	-	-	-	-	
P.8	-	-	-	-	

Abbreviations: M.O.E.(Ministry of Education); P.E.D.(Provincial Education Department); P.C.(Planning Commission); U.G.C.(University Grants Commission); P.P.D.(Provincial Planning Department);D.T.E. (Directorate of Technical Education); E.U.(Engineering universities); B.T.E.(Board of Tech:Ed); T.B.B.(Textbook Board); D.O.S.(Directorate of Schools); D.O.C.(Directorate of Colleges);P.E.C. (Pakistan Engineering Council); P.D.O.M.P.T. (Provincial Directorate of Manpower Training)

ANNEX - III

INDIVIDUAL RESPONSES TO QUESTION II.3

Respondent No.	Agencies	Data Gathering	Data Analysis	Decision Making	
N.1.N.A.)	M.O.F.	M.O.F.	M.O.F.	M.O.F.	
G.F.)	P.C.	P.C.	P.C.	P.C.	
P.F.)					
P.A.)					
N.2.N.A.	P.P.D.	P.P.D.	P.P.D.	M.O.E.	
	P.C.	P.E.D.	P.F.D.	P.C.	
G.F.	Same	Same	Same	Same	
P.F.	P.C.	High level inter-			
	M.O.F.	provincial meeting			
		of experts		M.O.E.	
P.A.	M.O.E.		M.O.E.	M.O.E.	
	P.E.D.	P.E.D.	P.C.	P.C.	
P.1.N.A.	M.O.E.	M.O.E.		M.O.E.	
	M.O.L	M.O.L	-	M.O.L	
G.F.	Same	Same	-	Same	
P.F.	Same	Same	-	Same	
P.A.	Same	Same	-	Same	
P.2.N.A.	D.T.E.	D.T.E.	D.T.E.	D.T.E.	
G.F.	D.T.E.	D.T.E.	D.T.E.	D.T.E.	
	P.E.D.	P.E.D.	P.E.D.	P.E.D.	
P.F.	D.T.E.	D.T.E.	D.T.E.	D.T.E.	
	P.E.D.	P.E.D.	P.E.D.	P.E.D.	
P.A.	D.T.E.	D.T.E.	D.T.E.	D.T.E.	
	P.E.D.	P.E.D.	P.E.D.	P.E.D.	
	P.P.D.	P.P.D.	P.P.D.	P.P.D.	
P.3.N.A.	None	None	None	None	
G.F.	None	None	None	None	
P.F.	D.T.E.	D.T.E.	D.T.E.	D.T.E.	
P.A.	Same	Same	Same	Same	
P.4.N.A.	P.C.	P.C.	P.C.	P.P.D	
		M.O.E.	P.P.D.		
		P.P.D.			
G.F.	P.C.	M.O.E.	M.O.E.	M.O.E.	
P.F.	P.C.	M.O.E.	P.C.	P.C.	
		P.C.		M.O.E.	
P.A.	P.C.	P.C.	P.C.	P.C.	
	P.P.D.	P.P.D.	P.P.D.	P.P.D.	

.....Contd ii...

1	2	3	4	5	6
P.5. N.A.	B.O.E.	B.O.E	-	-	
G.F.	D.T.E.	-	D.T.E.	-	
P.F.	P.E.D.	-	P.E.D.	P.F.D.	
P.A.	M.O.E.	-	M.O.E.	M.O.E.	
P.6. N.A.) G.F.) P.F.) P.A)	Not known	Not known	Not known	Not known	
P.7. N.A.	P.C.	P.C.	P.C.	P.C.	
	M.O.E.	M.O.E.	-	M.O.E.	
	P.E.D.	P.E.D.	-	P.E.D.	
	P.P.D.	P.P.D.	-	P.P.D.	
	D.T.E.	-	-	D.T.E.	
	B.T.E.	B.T.E.	-	-	
G.F.	P.C.	-	-	P.C.	
P.F.	P.C.	-	-	P.C.	
	M.O.E.	-	-	M.O.E.	
P.A.	P.C.	-	P.C.	-	
P.8. N.A.) G.F.) P.F.) P.A.)	Not known				

Abbreviations: N.A. Needs Assessment; G.F.Coal Formulation; P.F. Policy Formulation; P.A. Policy Analysis & Review; M.O.E. Ministry of Education; P.C. Planning Commission; P.P.D. Provincial Planning Department; P.E.D. Provincial Education Department; M.O.L. Ministry of Labour & Manpower; D.T.E. Directorate of Technical Education; B.O.E. Bureau of Education; B.T.E. Board of Technical Education.

ANNEX - IV

INDIVIDUAL RESPONSES TO QUESTION II.4

Respondent	Quantitative	Qualitative
N.1.	Surveys	Group of experts meetings
N.2.	Surveys& Statistics	Curriculum content and its relevance with job market.
P.1.	-	-
P.2.	Census & Surveys	Results of the B.O.T.E. Market situation.
P.3.	-	-
P.4.	Statistical data and P.C.documents	Employment market and examination system.
P.5.	-	-
P.6.	Dontknow	Dont know
P.7.	Manpower needs (surveys)	Contact with employers.
P.8.	-	-

Abbreviations: B.O.T.E. Baord of Technical Education; P.C. Planning Commission.

P.6.	We are not involved.
P.7.	Linked up with the question of need assessment. Informal discussions at various levels, Ministry of Education, Inter-provincial meetings, teams from Planning Commission & Pakistan Engineering Council.
P.8.	No response.

ANNEX- VI

INDIVIDUALS RESPONSES TO QUESTION II.6

Respondent	FACTORS						
	1	2	3	4	5	6	7
N.1.	Dev:plans	i.Dev: plans. ii.Innovative Technologies	Technical streams at secondary level	Supply & Demand	-	Overseas requirement	-
N.2.	Same	i.Supply & Demand ii.Relevance of curriculum.	Same	-	-	Both internal and external requirements	-
P.1.	Not known	Not known	Not known	Social demand	-	Overseas requirements	-
P.2.	Dev:plans	Dev:plans	No change	Social demand	-	Overseas requirements	-
P.3	-	-	-	-	-	-	-
P.4.	Dev: plans.	i.Manpower training ii.In few cases	-	Estimating requirements	-	Overseas requirements which has come down	Student attitude. Socio-pol:& econ: environment
P.5.	-	Manpower requirements	Yes	Yes	-	Yes	-
P.6.	Dont know	Dont know	Dont know	Dont know	Dont Know	Dont know	-
P.7.	Five Year Plan	i.Planning new institutions. ii.Curriculum development	Updating of tech: curriculum.	Innovative approaches	Education policy in the context of pol: philosophy.	Policies are not formulated for this purpose.	-
P.8.	-	-	-	-	-	-	-

ANNEX - VIII

INDIVIDUALS RESPONSES TO QUESTION I.6

Respondent	Frequency of use.	Review	Publication
N.1.	Frequent	Premature	When necessary
N.2.	Frequent	Premature	When necessary
P.1.	At times of preparation of new schemes.	Not applicable.	Every five years at National level.
P.2.	Same	Same	Same
P.3.	Very seldom	Nil	Just once
P.4.	Regular feature	Suggestions frequently invited.	Once
P.5.	Sometimes.	Nil	Nil
P.6.	As & when schemes are prepared.	Nil	Once in five years at National level.
P.7.	Average	Not applicable	Periodically when a new policy is framed.
P.8.	Average	Not applicable.	Same

ANNEX - IX

INDIVIDUALS RESPONSES TO QUESTION I.7

Respondent	EXTENT OF SPECIFICITY			EXTENT OF ADEQUACY		
	Low	Average	High	Low	Average	High
N.1.	-	2-9	1	-	2-9	1
N.2.	-	2-9	1	-	2-9	1
P.1.	1,3,5, 6,7,8,9	2,4	-	1,3-9	-	-
P.2.	8	1,2,4,7	-	-	1,2,4,7,8	-
P.3.	8	-	1	8	1	-
P.4.	2,3,6	1,4,5,9	7,8	2,3,4,6	1,5,7 8,9	-
P.5.	2,3,4,5 7,8,9	1	5(b)	2,3,4, 7,8,9	1	-
P.6.	1-9	-	-	1-9	-	-
P.7.	7	4,5	1,8	1,4,5, 7,8	-	-
P.8.	2-9	1	-	1-9	-	-

ANNEX - X

CUMULATIVE INDIVIDUAL RESPONSES TO QUESTION 1.8

Respondent	EXTENT OF FULFILMENT		
	None	Moderate	High
N.1.	-	1,3,4,6,8,9	2,5,7
N.2.	7,8,9	1,2,3,4,5	-
P.1.	2,8,9	1,3,4,5,6,7	-
P.2.	1,5,6,7,8,9	2,3	4
P.3.	1	-	2,5,8
P.4.	-	1,4,7,8,9	2,3,5,6
P.5.	4,6,9	1,2,5,7,8	-
P.6.	2,3,6,7,8,9	1,5	4
P.7.	5,6,7,8	2,4	1
P.8.	1,2,3,9	4,5,6,7,8	-

ANNEX - XIII

CUMULATIVE RESPONSES OF INDIVIDUALS TO QUESTION I.3

Respondent	Area 1	Area 2	Area 3
N.1.	1 NEP	2 NEP	3 NEP
N.2.	2 NEP	4 NEP	8 NEP
P.1.	1 SFYP	4 NEP	8 NEP
P.2.	2 NEP	4 NEP	6 NEP
P.3.	1 NEP	2 NEP	13 SFYP
P.4.	2 NEP	4 NEP	13 SFYP
P.5.	1 NEP	4 NEP	9 SFYP
P.6.	1 NEP	4 NEP	13 SFYP
P.7.	1 NEP	3 NEP	4 NEP
P.8.	1 NEP	2 NEP	4 NEP

Abbreviations: NEP National Education Policy; SFYP Sixth Five Year Plan.

N.B. Policy statements can be seen from the extract of the Policy given in the Section Overview of Technical Education.

	nology (2)	employers(4)	-
P.3.	Need for developing the pedagogical skills(1)	Need of clearly worded curriculum to facilitate the work of students and teachers (2)	Needs of industry and society (13)
P.4.	Need for correlation between inputs and outputs(2)	General acceptability of the product in the market(4)	Emergence of technologies in other parts of the world (13)
P.5.	Feedback (1)	Evaluation (4)	Implementation (9)
P.6.	-	-	-
P.7.	Training teachers basic need to develop their pedagogical skills.Updating of teachers lab & courses (1)	Chronic shortage of textbooks, lab & workshop manuals (3)	Growing complexities of new equipment require interface with industry (4)
P.8.	-	-	-

ANNEX - XV

INDIVIDUAL RESPONSES TO QUESTION II.10

Respondent	Qualitative and Quantitative Dimensions of the problems/issues/needs.		
	Area 1	Area 2	Area 3
N.1.	Surveys, discussions with the officials/ experts concerned with technician education in the provincial education departments and Federal government.	Same as in 1	Same as in 1
N.2.	Inter-provincial meeting of experts, Working Group on Technical Education.	Same as in 1	Same as in 1
P.1.	Not known	Not known	Not known
P.2.	Demand from industries for practical oriented curriculum.	-	-
P.3.	Not known	Not known	Not known
P.4.	Urge to update the knowledge and skills of the students during training period.	Lack of skills and employability in the employment market (survey)	Socio-economic and political conditions in the country demand acquisition of skills in the trained people.
P.5.	-	-	-
P.6.	-	-	-
P.7.	Needs determined on the basis of polytechnics being set up. Surveys at the national level.	Surveys and reports of shortages in the critical areas.	Needs projected in various conferences. discussion forums and inter-provincial meetings.
P.8.	-	-	-

P.6.	2	1	2-10	1-7	-	-
P.7.	3	1,3,6,7	2,4,5, 8,9,10	3-7	1,2	-
P.8.	-	-	-	-	-	-

ANNEX - XVII

CUMULATIVE INDIVIDUAL RESPONSES TO QUESTION II.12

Respondent		Example 1	Example 2
N.1.	Yes	N.T.T.T.C.	B.O.T.E.
N.2.	Yes	Production oriented curriculum	Introduction of evening programmes in Tech & Voc: Institutes.
P.1.	Yes	Strengthening the capability of existing research and development institutes.	Privately endowed University for science and technology.
P.2.	Yes	Village Workshops.	-
P.3.	No.	N.A.	N.A.
P.4.	No.	-	-
P.5.	Yes	Involving rural population in tech: education.	Liaison with industrial sector.
P.6.	-	-	-
P.7.	Yes	Innovations	Four year diploma of evening courses and polytechnic curriculum on modular system.
P.8.	-	-	-

Abbreviations: NTTTC National Technical Teachers Training College; B.O.T.E. Boards of Technical Education.

for formulating such policies must be based on systematic studies and analysis. This conference has accordingly been planned to bring together senior persons from the regional countries, currently engaged in the formulation and/or implementation of policies related to technician education in their respective countries and to provide them with a forum for in-depth discussions and exchange of relevant experiences, on the problems, prospects, issues and challenges in technician education and recommend improvements in policy formulating mechanisms and processes so as to facilitate implementation. Delegates to the Conference will be senior key persons holding positions such as secretaries/heads of ministries/ departments concerned with the policy planning, development, funding or regulating of technician education in their respective countries.
Conference objectives are:

1.1 To exchange information on current practices of policy formulation for the development of technician education in member countries, highlighting salient features of such policies.

- Is there any evidence that economic development choices are influenced by actual output from technician education system?

4.2 Goals and Policies (Survey Questions 8 to 17)

The pace and direction of progress of the technician education system of a country depends upon how goals are clearly set out and policies are formulated for the system. A note may be prepared to include:

- What processes and mechanisms exist for defining goals of technician education?

- What goals and policies have explicitly been set out for the country's technician education system and in what areas?

- In what form are such goals and related policy stated? A government resolution, decree, legislation or any other?

- Do the goals and related policies specifically and adequately give directions in respect of:

  . Training technician manpower for the different economic sectors of the country.

  . Providing employable skills for out of school youth.

  . Collaborating and cooperating with industry and maintaining sensitivity to employment market.

  . Upgrading or diversifying skills of existing workforce.

  . Taking a long range view of technological advances which may take place in the country and their impact on training systems, both qualitatively and quantitatively.

  . Facilitating rural development in cooperation with other agencies and promoting transfer of technology to rural areas.

  . Staff development including managerial competencies.

- What are the different perceptions of the term "Policy"?

- Is there a well defined system of data banking to support policy formulation?

4.3 Planning Process (Survey Questions, 7, 8, 16, 17)

Planning is a process which involves several aspects. A note on the following aspects, which are important in the context of this study, needs to include:

- Long range forecasting - (a period of 5 to 10 years) quantitatively and qualitatively.

- Target setting and programming for the plan period.

- Resource allocation to match policies and plans.

- Planning mechanisms - linkages with other economic sectors - employment generation, school leaving population seeking employment, prioritisation between different demands - economic demands and social aspirations, coordination between different agencies producing technician manpower, etc..

4.4 Implementation (Survey Questions 20 to 23)

Successful implementation of policies depends on many factors. Clarity and explicitness of policy statements and aspects like funding, expertise, resource allocation, decision making styles, communication, coordination, monitoring, procedural/legislative mechanisms, etc. could either facilitate or inhibit successful implementation depending on the ways these factors operate. The note should identify all the major facilitating and inhibiting factors considered to be in operation. In addition the strength or otherwise of the linkages between important aspects related to policy formulation, implementation and review should also be assessed and reported. For example if there is a strong linkage between needs assessment (quantitative and qualitative) and goal formulation and a weak linkage between goal formulation and policy formulation, the extent and nature of adequacies and inadequacies should be brought out.

4.5 Monitoring and Review (Survey Question 19)

The process of monitoring, the frequency of monitoring efforts and the contribution to policy review should be included.

4.6 Research and Innovations (Survey Question)

The promotion of research and innovations in order to improve efficiency and effectiveness of processes in the technician education system, as a whole would need an explicit policy. The existence of such policy and its operation should be included in the report.

5. INSTRUCTIONS FOR CONDUCT OF THE COUNTRY-STUDY

5.1 The statistical information asked for is brief and needs to be gathered from appropriate sources.

5.2 The aims of the study given in 2.1 and 2.2, the objectives of the study given in para 3, the schedule of survey questions and the instruments for use at national, state and institutional levels have to be considered wholistically. The aims and objectives needs to be assigned utmost importance. If some more questions become necessary during the conduct of the study, in the interest of achieving the aims and objectives, such questions may be posed.

5.3 The schedule of survey questions provides the framework for gathering country-specific information. In this schedule, the mode of enquiry Questions to be administered personally (QAP), Interview (I) and Document Analysis (DA) have been indicated. Reference to objective numbers have been indicated on the left hand margin. The number of respondents at each level and the reference to the serial numbers of questions in the instruments have also been shown separately for the different levels.

5.4 The instruments for gathering data at each level have been given separately. Questions to be administered personally and those for which data is to be gathered through Interview and/or Document Analysis have also been provided separately. On the left hand margin, reference to Objective numbers and survey question numbers is made for cross

referencing purposes.

5.5 In conducting the country study, data have to be gathered commencing from the institutional level. Depending on the nature of responses at the national level, a few questions may need reformulation, when administered to lower levels.

5.6 It should be impressed on the respondents that the data gathered will be CONFIDENTIAL and is to be used only as a background material for the conference and names of countries or organisations will be kept confidential. In order to minimise interview bias in making interpretation of responses, it is suggested that the final points emerging from the interview may be got validated by the respondent (interviewee).

5.7 In some cases, the blank space provided may not be adequate for the responses, especially for interview questions. Such data may be recorded separately giving proper references.

5.8 The purpose of asking the same survey question to the different categories of respondents at national, state, and institutional levels is to enable identification of commonalities and divergences in perceptions. Although the serial numbers of questions in the instruments for the different categories of respondents will be different, the reference to the objective and several number of the survey question in the schedule will be the same. This needs to be kept in view while analysing the responses for identifying commonalities and divergences in opinions.

5.9 If a public 'document' which is considered as embodying goals/policies/data like a five year plan is available, its relevant contents may also be analysed and its significant features as required by pertinent questions reported. The document or its relevant portions may also be sent.

5.10 All the response sheets, together with a summary of the responses and their analysis should be sent along with the comprehensive report on the country study.

5.11 When data is gathered from respondents at different levels (national - state - institution) the response sheets by levels should be kept separate. The summary should include inferences on commonalities

and divergence between responses of individuals at the three different levels.

5.12 The Report should be completed so as to reach the CPSC by 31 March 1984.

	No. of	No. of in whi of	Tot	Tot	Avera c trai	Appro centa withi of g	Approx emig empl forie
Vocational/Craftmen							
Technician (Middle level)							
Engineering (First degree)							

SCHEDULE OF SURVEY QUESTIONS FOR USE IN THE BACKGROUND STUDY FOR THE CONFERENCE ON TECHNICIAN EDUCATION POLICY ANALYSIS AND POLICY FORMULATION

Objective No.	Survey Question No.	Survey Questions	* Suggested Mode of Enquiry	** No. of Respondents and Reference to Instrument		
				National Level	State Level	Institutional Level
3.4	1	What is the meaning of the term "Technician" as commonly understood in the country?	QAP	2-3 I.1	3-6 I.1	
3.2	2	What are the structures of the agencies responsible for each of the following and what are their roles and interrelationships as regards each aspect? Needs assessment, Goal formulation, Policy formulation, Policy analysis and review in Technician Education.	I DA	2-3 II.1	3-6 II.1	
3.2	3	What are the interrelationships of the agencies mentioned, as regards the aspects in 2 above, with similar agencies for • Vocational Education and Training • Engineering Education • General Education • Higher (University Level) Education	I DA	2-3 II.2	3-6 II.2	
3.2	4	What processes (procedural mechanisms) are adopted in respect of each of the aspects mentioned in 2 above and by which of the agencies mentioned in 2 for data gathering, interpretation and decision making?	I DA	2-3 II.3	3-6 II.3	

* QAP Questions to be administered personally

I Interview

DA Document Analysis

** Examples

2-3 indicates number of respondents
I Questions administered personally
II Schedule of Questions for Interview and/or Document Analysis
I.1 Question at Sl no. 1 of I
II.6 Question at Sl no. 6 of II

Objective No.	Survey Question No.	Survey Questions	Suggested Mode of Enquiry *	No.** of Respondents and Reference to Instrument		
				National Level	State Level	Institutional Level
3.3	5	What evidence is available of the nature of scientific methodologies for Needs Assessment? . Quantitative . Qualitative	I DA	2-3 II.4	3-6 II.4	
3.2	6.	What is the process of Policy formulation on issues and problems having implications for other systems viz vocational education, general education, engineering education and vice versa?	I DA	2-3 II.5	3-6 II.5	
3.3	7	What is the extent and nature of consideration given to various factors (specified in the instrument) in goal setting and Policy formulation in the Technician Education System of the country?	I DA	2-3 II.6	3-6 II.6	
3.4	8	Which are the documents that explicitly state Goals and POlicies of Technician Education?	QAP	2-3 I.4, 5	3-6 I.4, 5	6-8 I.2
3.4	9	How frequently are the documents indicated in 8 above used/reviewed/published?	QAP	2-3 I.6	3-6 I.6	6-8 I.2
3.4	10	Do the Policy documents stated in 8 above give specific directions in respect of various aspects (specified in the instrument)? What briefly is the nature of those directions from the point of view of adequacy and specificity?	QAP DA	2-3 I.7 (QAP) II.7 DA	3-6 I.7 (QAP) II.7 DA	6-8 I.3 (QAP)
3.1	11	What are the significant features of existing Policy statements contained in 8 above? The extent of fulfilment of the aspects mentioned in the instrument to be ascertained on a rating scale, None, Moderate, High?	QAP I DA	2-3 I.8	3-6 I.8	6-8 I.4
3.1	12	What are the different perceptions of the term "Policy"? What is its purpose? What elements should it contain in order to facilitate implementation?	I	2-3 II.8	3-6 II.8	6-8 II.1

| | | |

A BACKGROUND STUDY FOR THE CONFERENCE ON
TECHNICIAN EDUCATION POLICY ANALYSIS AND
POLICY FORMULATION

INSTRUMENTS FOR USE AT THE NATIONAL LEVEL

Note: The respondents at the National level would include the concerned Ministry official, authorities of National academic bodies for Technician Education, National Councils, Societies, etc.
Two to three respondents, primarily responsible for Policy making at the National level are expected to be contacted

STATISTICAL INFORMATION

1. Economic Features

   1.1 Total area (Sq Km)

   1.2 Population (Year) Millions

   1.3 GNP (Year) in US$

   1.4 GNP per capita (Year) in US$

2. Education and Training (Technical) for the latest year available.

Year.....

Nature of Programme	No. of Institutions	No. of disciplines in which programmes offered	Total annual intake	Total annual output	Average Recurring cost per trainee/student	Approximate Per-centage employed within one year of graduation	Approximate number emigrating for employment in foriegn countries
Vocational/Craftmen							
Technician (Middle level)							
Engineering (First degree)							

I QUESTIONS TO BE ADMINISTERED PERSONALLY

Ref to Obj.	Sl No.	Question
3.4/1	I.1	Does the term "Technician" carry a common understanding as "Middle level technically trained supervisory personnel between the skilled worker and the Engineer", in your country? YES/NO If your answer is 'No', what are the differences?
3.4/13	I.2	For the development of the technician education system, the country would be having goals/policies and plans in many areas. However, the current emphasis might be on some critical priority areas. Which of the folowing are such critical priority areas (i.e. areas where the emphasis is currently high)? More than one area could be identified - If any area is missing, that could be added in the blanks. (Identify the critical areas by placing a tick mark in the box)

	1	Staff Development and Appraisal ..... ✓
	2	Curriculum Development ..... ✓
	3	Teaching Learning Resources .....
	4	Interface with Industry .....
	5	Institutional Autonomy .....
	6	Systematic Evaluation of Institutions/Programmes .....
	7	Continuing/Nonformal Education .....
	8	Norms, Standards, Accreditation .....
	9	Research, Development, Innovations .....
	10	Public Awareness .....
	11	Rural Development .....
	12	International Cooperation .....
	13	New Programmes in emerging Technologies
	14	.....

Ref to Obj.	Sl No.	Question
3.4/14	I.3	Select three of the critical priority areas identified in Q. I.2 (those which are most important to the system) and for each one of them, give one example of an existing policy statement.
	1	Area ..... Policy Statement
	2	Area ..... Policy Statement
	3	Area ..... Policy Statement
3.4/8	I.4	Are there documents which explicitly state Goals and Policies of Technician Education? YES/NO
3.4/8	I.5	If your response to Q.I.4 is yes, what are the titles of such documents?

COLOMBO PLAN STAFF COLLEGE FOR TECHNICIAN EDUCATION
SINGAPORE

OUTLINE OF THE BACKGROUND STUDY TO BE CONDUCTED, FOR USE IN THE CONFERENCE ON POLICY ANALYSIS AND POLICY FORMULATION

14 - 19 May 1984

OUTLINE OF THE BACKGROUND STUDY FOR THE CONFERENCE ON TECHNICIAN EDUCATION POLICY ANALYSIS AND POLICY FORMULATION

to be organised by the Colombo Plan Staff College for Technician Education, Singapore from 14 - 19 May 1984

1. INTRODUCTION

The Staff College has been organizing, among other activities, Senior Administrators' Conferences with a view to assessing the impact of the College programmes on regional countries and enhancing its sensitivity to their priority needs. These conferences having held in-depth deliberations on various aspects of technician education, in particular, the emerging challenges and new directions of change, have identified a number of areas requiring priority action, in which CPSC could either take initiatives or support efforts of regional member countries. One of such areas relates to policy formulation and analysis in the field of technician education where the CPSC could facilitate creation of desired awareness and interaction amongst member countries. This choice arose out of the concern that policies aimed at the promotion of technician education must be conceived in the context of the objective realities obtaining in the Region and procedures adopted for formulating such policies must be based on systematic studies and analysis. This conference has accordingly been planned to bring together senior persons from the regional countries, currently engaged in the formulation and/or implementation of policies related to technician education in their respective countries and to provide them with a forum for in-depth discussions and exchange of relevant experiences, on the problems, prospects, issues and challenges in technician education and recommend improvements in policy formulating mechanisms and processes so as to facilitate implementation. Delegates to the Conference will be senior key persons holding positions such as secretaries/heads of ministries/ departments concerned with the policy planning, development, funding or regulating of technician education in their respective countries.
Conference objectives are:

1.1 To exchange information on current practices of policy formulation for the development of technician education in member countries, highlighting salient features of such policies.

1.2 To discuss futuristic trends in planning and management of technician education systems and identify strategies to cope with these trends.

1.3 To evolve conceptual framework along with required institutional infrastructure which could be used for policy formulation conducive to sustained growth of technician education in member countries.

In order to deliberate in a meaningful and purposeful manner positively, the Conference needs to have a clear picture of the mechanisms, structures and processes in operation in the regional countries in respect of policy formulation, implementation and review. The proposed background study aims to gather data to meet this need.

2. SCOPE OF THE BACKGROUND STUDY

The study would primarily focus on gaining insights and understandings which would be useful to the Conference delegates in evolving strategies for improving policy formulation, implementation and review and related decision making processes. The attempt would be to understand the related processes and structures in operation in the regional countries, so that similarities and differences could be adequately comprehanded, and appropriate courses to be followed in future could be charted.

The study would search for identifying existing logical linkages and gaps with special reference to factors facilitating or inhibiting policy implementation at various levels in the regional countries. The study would be based upon synthesis of data/information obtained from a sample of regional countries and would not identify countries by name, as the main purpose is to enable delegates to deliberate on the broad spectrum of processes and mechanisms in operation in the regional countries. The specific aims of the study are to:

2.1 Describe the existing organisational structures and processes responsible for policy formulation and review in regional countries, and

2.2 Identify the factors that facilitate/inhibit implementation of technician education policies in important areas like staff development, curriculum development, development of physical facilities resource allocation, etc.

3. OBJECTIVES OF THE STUDY

Within the overall approach stated above, the study is planned to:

3.1 Identify the prevailing perceptions of the term "Policy" amongst concerned authorities at different levels in regional countries.

3.2 Describe the structures of policy making bodies within regional countries at different levels (to include all concerned agencies)and the processes in operation at various levels.

3.3 Describe the processes adopted for needs assessment and goal formulation and the corresponding institutionalised or adhoc arrangements.

3.4 Identify the areas of Technician Education for which explicit policies exist and perceptions of such policies at different levels and amongst different operational bodies.

3.5 Identify the existing policies for management of change, research and innovations.

3.6 Identify the factors in operation which facilitate/inhibit policy implementation related to aspects like: explicitness and clarity of policy statements, funding, expertise needed for implementation, resource allocation, delegation of administrative and financial powers and extent of freedom of action and decision making styles, communication, coordination, incentive and reward systems, monitoring and procedural mechanisms.

4. COUNTRY STUDIES AND GUIDELINES FOR THE REPORTING OF INFORMATION

It is intended to gather information from selected regional countries either through designated associate researchers or by deputing CPSC faculty members for the purpose. Keeping in view the afore-mentioned introduction, scope and objectives, the associate researcher/faculty member would be expected to collect and present information with self explanatory notes on various aspects related to policy formulation, implementation and review, and in addition some related statistical information. A format for statistical information, a schedule of survey questions, and instruments for gathering data from national, state and institutional

levels have been provided for the conduct of the country-study. Based on information collected through these instruments, a study report would be expected for each regional country, where the study is proposed to be conducted.
Following is the suggested format for the report.

4.1 Structures of Policy Making Bodies, Their Roles and Relationships

(Survey questions 2 to 7)

A brief account may be provided of the country's technician education system, the policy making bodies (as regards Technician Education) at national and lower levels, other agencies involved including vocational and engineering education on the one hand and general and university education on the other, their roles in policy making and planning and interrelationships. The information gathered through use of the schedule of survey questions and the corresponding instruments should enable answering of the following which should be included in the account.

- Does the term "Technician" carry a standard definition?

- What are the various agencies currently engaged in policy making and planning of technician education? If there are several agencies involved, what is the area of responsibility of each agency? Are these agencies linked and if so how?

- Is there any single national agency which is responsible for overall policy making in respect of technician education? If there are agencies at national and lower levels (like state and institutional levels) what are their roles and interrelationships in terms of areas for which policies are formulated at different levels?

- In what significant ways have factors like industrial growth and technological developments, changes in manpower requirements, changes in school systems, social demand, political changes, etc., influenced the policies related to the country's technician education system?

- Is there any evidence that economic development choices are influenced by actual output from technician education system?

4.2 Goals and Policies (Survey Questions 8 to 17)

The pace and direction of progress of the technician education system of a country depends upon how goals are clearly set out and policies are formulated for the system. A note may be prepared to include:

- What processes and mechanisms exist for defining goals of technician education?

- What goals and policies have explicitly been set out for the country's technician education system and in what areas?

- In what form are such goals and related policy stated? A government resolution, decree, legislation or any other?

- Do the goals and related policies specifically and adequately give directions in respect of:

  . Training technician manpower for the different economic sectors of the country.

  . Providing employable skills for out of school youth.

  . Collaborating and cooperating with industry and maintaining sensitivity to employment market.

  . Upgrading or diversifying skills of existing workforce.

  . Taking a long range view of technological advances which may take place in the country and their impact on training systems, both qualitatively and quantitatively.

  . Facilitating rural development in cooperation with other agencies and promoting transfer of technology to rural areas.

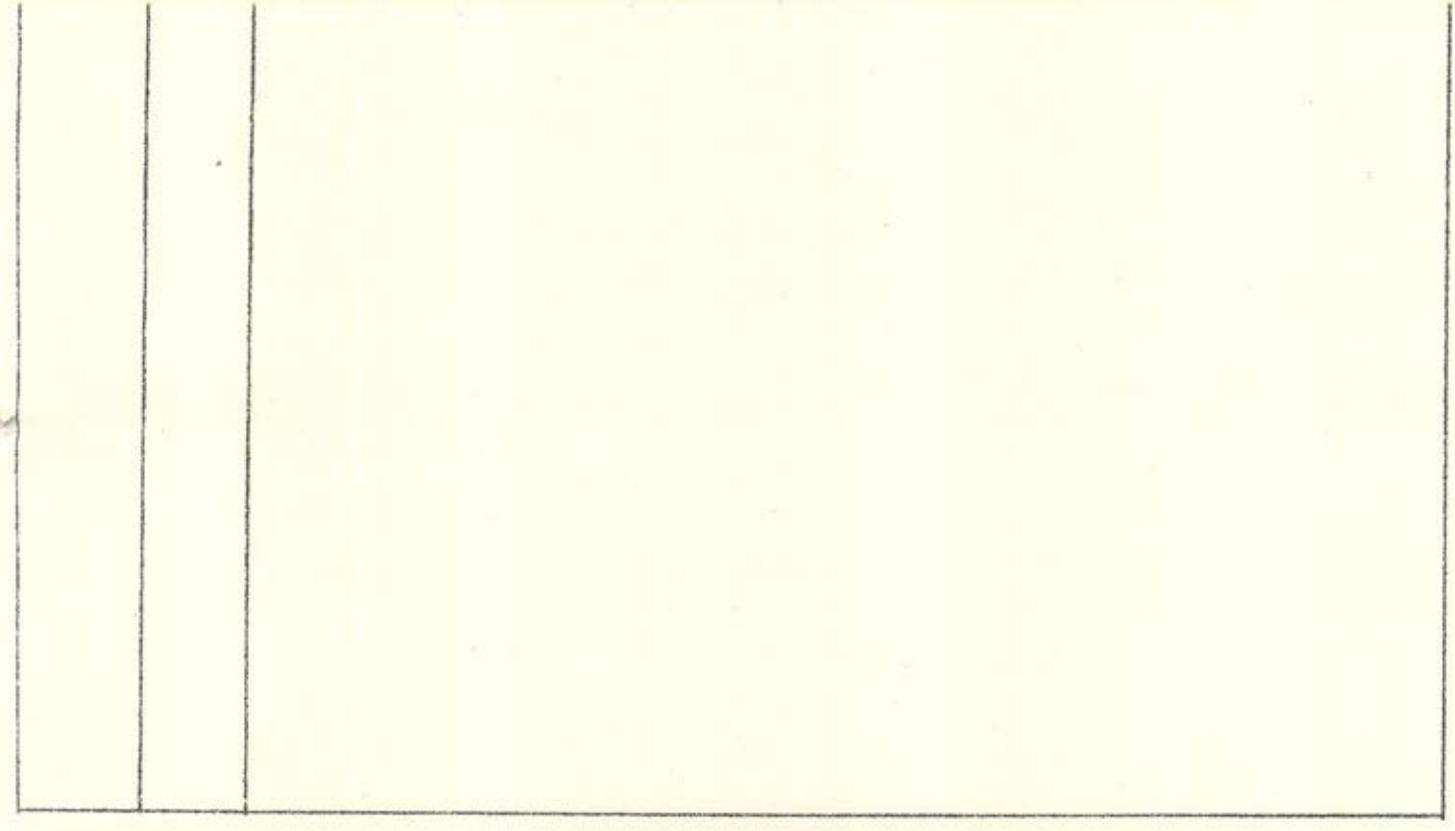
  . Staff development including managerial competencies.

Ref to Obj.	Sl No.	Question
3.4/9	I.6	How frequently are the documents stated in Q.14 used/reviewed/ published? Frequency of use at your level. Frequency of review at your level. Frequency of publishing.

Ref to Obj.	Sl No.	Question
3.4 / 10	I.7	Indicate the extent to which existing Policy documents give adequate and specific directions in respect of the following aspects. Place tick mark in the column appropriate to your response only in cases of those aspects which are applicable to your country.

	Aspects	Extent of					
		Specificity			Adequacy		
		Low	Ave-rage	High	Low	Ave-rage	High
1	Training technician manpower for the different economic sectors of the country **						
2	Providing employable skills to out of school youth						
3	Upgrading or diversifying skills of existing workforce						
4	Colloborating and cooperating with industry in the training of technician manpower						
5	Taking a long range view of technological advances and their impact on training systems a) qualitatively b) quantitatively						
6	Training manpower to meet the needs of industries set up with foreign investment						
7	Facilitating rural development						
8	Developing staff of technician institutions						
9	Creation of data banks/information systems						

Ref to Obj.	Sl No.	Question			
3.1 / 11	I.8	What is the extent of fulfilment of each of the following features of existing Policy statements contained in Sl No. I.5. Indicate the extent of fulfilment on the rating scale by placing tick mark in appropriate columns.			
		Features	Extent of Fulfilment		
			None	Moderate	High
	1	Gives a clear idea of the quantitative need			
	2	Gives clear idea of the qualitative need			
	3	Is timebound			
	4	Is linked to budget allocation			
	5	Gives clear directions to implementors			
	6	Extent of delegation of authority to subsidiary levels clear			
	7	Contains clear definition of what is meant to be successful implementation of policy			
	8	Clear statements of monitoring mechanism			
	9	Clear indications of data banks/information systems			



Ref to Obj.	Sl No.	Question
3.6 / 21, 22	I.10	Some factors related to Policy implementation are given below. The presence of each of these factors could facilitate Policy implementation and the lack of these factors could inhibit implementation. In the current context identify those factors which facilitate and those which inhibit Policy implementation by placing a tick mark in the appropriate column. You may add to the list of factors if you desire. Obviously, against any of the factors, tick marks cannot be placed in both the columns.

EXISTING CONTEXT

	Factors	Presence is facilitating	Absence (lack) is inhibiting
1	Explicitness and clarity of Policy statements		
2	Funding - adequacy and timeliness		
3	Expertise available for implementation		
4	Physical resource development		
5	Motivational level of concerned staff		
6	Communication/Information Exchange		
7	Coordination		
8	Incentive and Reward systems		
9	Monitoring and other procedural mechanisms		
10	Delegation of authority		

Ref to Obj.	Sl No.	Question
3.6/23	I.11	What is the current level of strength of linkage between aspects related to policy? Indicate opinions on strengths of linkage on the five point rating scale given for each pair of aspects given below, by placing a tick mark in the column appropriate to your response.

	Linkages Between	Strength				
		Low 1	2	3	4	High 5
1	Needs assessment and goal formulation					
2	Goal formulation and policy formulation					
3	Policy formulation and budget allocation					
4	Policy formulation and policy implementation					
5	Policy implementation and monitoring of implementation					
6	Monitoring of implementation and policy review					
7	Data gathering during policy review and use of such data for formulation of new policy					

II SCHEDULE OF QUESTIONS FOR INTERVIEW AND/OR DOCUMENT ANALYSIS

Ref to Obj.	Sl No.	Question
3.2/2	II.1	What are the structures of the agencies responsible for each of the following and what are their roles and interrelationships as regards each aspect?
	1	Needs assessment in Technician Education
	2	Goal formulation in Technician Education
	3	Policy formulation in Technician Education
	4	Policy analysis and review in Technician Education

Ref to Obj.	Sl No.	Question
3.2/3	II.2	What are the interrelationships of agencies mentioned (as regards the aspects in II.1 with similar agencies for:
	1	Vocational education and training
	2	Engineering education
	3	General education
	4	Higher (University level) education

Ref to Obj.	Sl No.	Question				
3.2/4	II.3	What processes (procedural mechanisms) are adopted in respect of each of these aspects and by which of the agencies (mentioned in II.1 for data gathering, analysis and decision making in respect of each of the following?				
			Procedure adopted for			
			Agency(ies)	Data Gathering	Data Analysis	Decision Making
	1	Needs assessment				
	2	Goal formulation				
	3	Policy formulation				
	4	Policy analysis and review				

Ref to Obj.	Sl No.	Question
3.3/5	II.4	What evidence is available of the nature of scientific methdologies adopted for Needs assessment?
	1	Quantitative
	2	Qualitative

ANNEX - XI

CUMULATIVE INDIVIDUAL RESPONSES TO QUESTION II.8

Respondent	Statement
N.1.	It relates to developments in the country to satisfy social welfare concept. It adequately provides for the needs of the country. Education, development of industry and overall national development programmes are its elements.
N.2.	Policy is a broader guideline for achieving certain objectives within a specified period of time. It should contain the elements of specificity, adequacy and clarity in terms of implementation.
P.1.	Policy should give clear directions both in terms of quantitative and qualitative goals to be achieved.
P.2.	Policy is a statement which sets a direction for achieving certain objectives depending upon the national requirements. The elements could be qualitative and quantitative such as number of physical targets and their size etc including the financial liability.
P.3.	Policy should be a very clearly worded working framework for the implementors.
P.4.	The policy must indicate the objectives, the end-results, and possible use of one or more alternate modalities for achieving the objectives.
P.5.	Goals, guidelines, resource information.
P.6.	Policy should be the document guiding the implementing agencies.
P.7.	Policy actually reflects the aspirations. Its purpose is to give a sense of direction and it should contain the rationale and the implementation procedure as well as the review mechanism.
P.8.	Policy is based on needs of the country. Larger number of skilled, semi-skilled workers, and technicians.

Ref to Obj.	Sl No.	Question
3.2/6	II.5	What is the process of policy formulation on issues and problems of technician education systems having implications for other systems viz. vocational education, general education, engineering education and vice-versa?

Ref to. Obj.	Sl No.	Question
3.3/7	II.6	How are the following factors taken into consideration in goal setting and policy formulation in the Technician Education System of the country?
	1	Industrial Growth and Technological Developments - long range forecasting
	2	Changes in manpower requirements a) quantitative changes b) qualitative changes
	3	Changes in school systems
	4	Social demands
	5	Changes in political philosophy
	6	Demands from foreign job markets
	7	Any other aspect (Mention)

Ref to Obj.	Sl No.	Question
3.4 / 10	II.7	Indicate the extent to which existing Policy documents give adequate and specific directions in respect of the following aspects. Place tick mark in the column according to the document analysis carried out by you (associate researcher). Only in cases of those aspects which are applicable to your country.

Sl No.	Aspects	Extent of Specificity			Extent of Adequacy		
		Low	Ave-rage	High	Low	Ave-rage	High
1	Training technician manpower for the different economic sectors of the country						
2	Providing employable skills to out of school youth						
3	Upgrading or diversifying skills of existing workforce						
4	Colloborating and cooperating with industry in the training of technician manpower						
5	Taking a long range view of technological advances and their impact on training systems a) qualitatively b) quantitatively						
6	Facilitating rural development						
7	Developing staff of technician institutions						
8	Creation of data banks/information systems						
9							

Ref to Obj.	Sl No.	Question
3.1 / 12	II.8	What are your perceptions of the term "Policy"? What is its purpose, what elements should it contain?
		Questions II. 9-11 are in relation to the specific policy statements identified in response to I.3
3.3 / 16	II.9	What problems/issues/needs necessitated the formulation of a policy in each of the three areas identified by you?
		Area 1
		Area 2
		Area 3

Ref to Obj.	Sl No.	Question
3.3 / 17	II.10	How were the qualitative and quantitative dimensions of the problems/ issues/needs determined, prior to the formulation of the policies mentioned in Sl no. I.3 Area 1 Area 2 Area 3

Ref to Obj.	Sl No.	Question				
3.6/18	II.11	What are the processes of monitoring policy implementation in these three areas at different levels?				
		Area	Level	Frequency of Feedback	Nature of Feedback	Nature of Follow-up
		1	State			
			Institution			
		2	State			
			Institution			
		3	State			
			Institution			

Ref to Obj.	Sl No.	Question
3.5 / 19	II.12	Do policies related to research and development including innovations exist? YES/NO If the answer is Yes, give two examples of such policy statements actually existing. Example 1 Example 2

A BACKGROUND STUDY FOR THE CONFERENCE ON TECHNICIAN EDUCATION POLICY ANALYSIS AND POLICY FORMULATION

INSTRUMENTS FOR USE AT STATE LEVEL (IN COUNTRIES HAVING A FEDERAL STRUCTURE) OR INTERMEDIATE LEVEL i.e. LEVELS INTERMEDIATE BETWEEN NATIONAL MINISTRY AND TECHNICIAN INSTITUTIONS. (ACADEMIC BODIES, SOCIETIES, COUNCILS OR BOARDS WHO HAVE POLICY-MAKING FUNCTION AT THIS LEVEL ARE ALSO INCLUDED)

Three to six respondents, primarily responsible for Policy making in their own respective domains are expected to be contacted.

I QUESTIONS TO BE ADMINISTERED PERSONALLY

Ref to Obj.	Sl No.	Question
3.4/1	I.1	Does the term "Technician" carry a common understanding as "Middle level technically trained supervisory personnel between the skilled worker and the Engineer", in your country? YES/NO If your answer is 'No', what are the differences?
3.4/13	I.2	For the development of the technician education system, the country would be having goals/policies and plans in many areas. However, the current emphasis might be on some critical priority areas. Which of the folowing are such critical priority areas (i.e. areas where the emphasis is currently high)? More than one area could be identified - If any area is missing, that could be added in the blanks. (Identify the critical areas by placing a tick mark in the box)

1	Staff Development and Appraisal	☐
2	Curriculum Development	☐
3	Teaching Learning Resources	☐
4	Interface with Industry	☐
5	Institutional Autonomy	☐
6	Systematic Evaluation of Institutions/Programmes	☐
7	Continuing/Nonformal Education	☐
8	Norms, Standards, Accreditation	☐
9	Research, Development, Innovations	☐
10	Public Awareness	☐
11	Rural Development	☐
12	International Cooperation	☐
13	New Programmes in emerging Technologies	☐
14	.....	☐

Ref to Obj.	Sl No.	Question
3.4/14	I.3	Select three of the critical priority areas identified in Q. I.2 (those which are most important to the system) and for each one of them, give one example of an existing policy statement.
	1	Area ..... Policy Statement
	2	Area ..... Policy Statement
	3	Area ..... Policy Statement
3.4/8	I.4	Are there documents which explicitly state Goals and Policies of Technician Education? YES/NO
3.4/8	I.5	If your response to Q.I.4 is yes, what are the titles of such documents?

Ref to Obj.	Sl No.	Question
3.4/9	I.6	How frequently are the documents stated in Q.14 used/reviewed/ published? Frequency of use at your level. Frequency of review at your level. Frequency of publishing.

Ref to Obj.	Sl No.	Question						
3.4 / 10	I.7	Indicate the extent to which existing Policy documents give adequate and specific directions in respect of the following aspects. Place tick mark in the column appropriate to your response only in cases of those aspects which are applicable to your country.						
		Aspects	Extent of					
			Specificity			Adequacy		
			Low	Ave-rage	High	Low	Ave-rage	High
	1	Training technician manpower for the different economic sectors of the country						
	2	Providing employable skills to out of school youth						
	3	Upgrading or diversifying skills of existing workforce						
	4	Colloborating and cooperating with industry in the training of technician manpower						
	5	Taking a long range view of technological advances and their impact on training systems a) qualitatively b) quantitatively						
	6	Training manpower to meet the needs of industries set up with foreign investment						
	7	Facilitating rural development						
	8	Developing staff of technician institutions						
	9	Creation of data banks/information systems						

Ref to Obj.	Sl No.	Question
3.1 / 11	I.8	What is the extent of fulfilment of each of the following features of existing Policy statements contained in Sl No. I.5. Indicate the extent of fulfilment on the rating scale by placing tick mark in appropriate columns.

	Features	Extent of Fulfilment		
		None	Moderate	High
1	Gives a clear idea of the quantitative need			
2	Gives clear idea of the qualitative need			
3	Is timebound			
4	Is linked to budget allocation			
5	Gives clear directions to implementors			
6	Extent of delegation of authority to subsidiary levels clear			
7	Contains clear definition of what is meant to be successful implementation of policy			
8	Clear statements of monitoring mechanism			
9	Clear indications of data banks/information systems			

Ref to Obj.	Sl No.	Question
3.6 20	I.9	What is the level of satisfaction as regards implementation of existing policies? Level of Satisfaction Low 1 2 Average 3 4 High 5 Encircle appropriate point on the rating scale.

Ref to Obj.	Sl No.	Question		
3.6 — 21, 22	I.10	Some factors related to Policy implementation are given below. The presence of each of these factors could facilitate Policy implementation and the lack of these factors could inhibit implementation. In the current context identify those factors which facilitate and those which inhibit Policy implementation by placing a tick mark in the appropriate column. You may add to the list of factors if you desire. Obviously, against any of the factors, tick marks cannot be placed in both the columns.		
		Factors	Presence is facilitating	Absence (lack) is inhibiting
	1	Explicitness and clarity of Policy statements		
	2	Funding - adequacy and timeliness		
	3	Expertise available for implementation		
	4	Physical resource development		
	5	Motivational level of concerned staff		
	6	Communication/Information Exchange		
	7	Coordination		
	8	Incentive and Reward systems		
	9	Monitoring and other procedural mechanisms		
	10	Delegation of authority		

Ref to Obj.	Sl No.	Question
3.6 / 23	I.11	What is the current level of strength of linkage between aspects related to policy? Indicate opinions on strengths of linkage on the five point rating scale given for each pair of aspects given below, by placing a tick mark in the column appropriate to your response.

	Linkages Between	Strength				
		Low 1	2	3	4	High 5
1	Needs assessment and goal formulation					
2	Goal formulation and policy formulation					
3	Policy formulation and budget allocation					
4	Policy formulation and policy implementation					
5	Policy implementation and monitoring of implementation					
6	Monitoring of implementation and policy review					
7	Data gathering during policy review and use of such data for formulation of new policy					

II SCHEDULE OF QUESTIONS FOR INTERVIEW AND/OR DOCUMENT ANALYSIS

Ref to Obj.	Sl No.	Question
3.2/2	II.1	What are the structures of the agencies responsible for each of the following and what are their roles and interrelationships as regards each aspect?
	1	Needs assessment in Technician Education
	2	Goal formulation in Technician Education
	3	Policy formulation in Technician Education
	4	Policy analysis and review in Technician Education

Ref to Obj.	Sl No.	Question
3.2/3	II.2	What are the interrelationships of agencies mentioned (as regards the aspects in II.1 with similar agencies for:
	1	Vocational education and training
	2	Engineering education
	3	General education
	4	Higher (University level) education

Ref to Obj.	Sl No.	Question				
3.2/4	II.3	What processes (procedural mechanisms) are adopted in respect of each of these aspects and by which of the agencies (mentioned in II.1 for data gathering, analysis and decision making in respect of each of the following?				
			Procedure adopted for			
			Agency(ies)	Data Gathering	Data Analysis	Decision Making
	1	Needs assessment				
	2	Goal formulation				
	3	Policy formulation				
	4	Policy analysis and review				

Ref to Obj.	Sl No.	Question
3.3/5	II.4	What evidence is available of the nature of scientific methdologies adopted for Needs assessment?
	1	Quantitative
	2	Qualitative

Ref to Obj.	Sl No.	Question
3.2/6	II.5	What is the process of policy formulation on issues and problems of technician education systems having implications for other systems viz. vocational education, general education, engineering education and vice-versa?

Ref to Obj.	Sl No.	Question
3.3/7	II.6	How are the following factors taken into consideration in goal setting and policy formulation in the Technician Education System of the country?
	1	Industrial Growth and Technological Developments - long range forecasting
	2	Changes in manpower requirements a) quantitative changes b) qualitative changes
	3	Changes in school systems
	4	Social demands
	5	Changes in political philosophy
	6	Demands from foreign job markets
	7	Any other aspect (Mention)

Ref to Obj.	Sl No.	Question						
3.4 10	II.7	Indicate the extent to which existing Policy documents give adequate and specific directions in respect of the following aspects. Place tick mark in the column according to the document analysis carried out by you (associate researcher). Only in cases of those aspects which are applicable to your country.						
		Aspects	Extent of					
			Specificity			Adequacy		
			Low	Ave-rage	High	Low	Ave-rage	High
	1	Training technician manpower for the different economic sectors of the country						
	2	Providing employable skills to out of school youth						
	3	Upgrading or diversifying skills of existing workforce						
	4	Colloborating and cooperating with industry in the training of technician manpower						
	5	Taking a long range view of technological advances and their impact on training systems a) qualitatively b) quantitatively						
	6	Facilitating rural development						
	7	Developing staff of technician institutions						
	8	Creation of data banks/information systems						
	9							

Ref to Obj.	Sl No.	Question
3.1 12	II.8	What are your perceptions of the term "Policy"? What is its purpose, what elements should it contain?
		Questions II. 9-11 are in relation to the specific policy statements identified in response to I.3
3.3 16	II.9	What problems/issues/needs necessitated the formulation of a policy in each of the three areas identified by you? Area 1 Area 2 Area 3

Ref to Obj.	Sl No.	Question
3.3 / 17	II.10	How were the qualitative and quantitative dimensions of the problems/ issues/needs determined, prior to the formulation of the policies mentioned in Sl no. I.3 Area 1 Area 2 Area 3

Ref to Obj.	Sl No.	Question
3.5/19	II.12	Do policies related to research and development including innovations exist? YES/NO If the answer is Yes, give two examples of such policy statements actually existing. Example 1 Example 2
3.1/15	II.14	The Interviewer to provide the examples of Policy statements obtained from respondents at the National level in response to Q. I.3 and obtain the understanding and interpretation of the respondent of those policy statements.

A BACKGROUND STUDY FOR THE CONFERENCE
ON TECHNICIAN EDUCATION POLICY ANALYSIS
AND POLICY FORMULATION

INSTRUMENTS FOR USE AT INSTITUTIONAL LEVEL

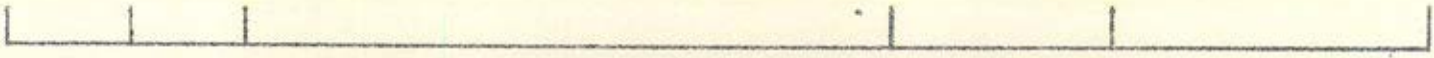
Six to eight respondents, heads of institutions of a representative cross section of institutions to be contacted.

Ref to Obj.	Sl No.	Question
3.4/8	I. 2	List the documents available with you, which specify current policies in the different areas of operation of the technician education system. What is the frequency of their use in your institution?

Title of Documents	Policy Area	Frequency of Use
1 ..		
2		
3		
4		
5		

Ref to Obj.	Sl No.	Question						
3.4/10	I.3	Indicate the extent to which existing Policy documents give adequate and specific directions in respect of the following aspects. Place tick mark in the column appropriate to your response. Only in cases of those aspects which are applicable to your country						
		Aspects	Extent of					
			Specificity			Adequacy		
			Low	Average	High	Low	Average	High
	1	Training technician manpower for the different economic sectors of the country						
	2	Providing employable skills to out of school youth						
	3	Upgrading or diversifying skills of existing workforce						
	4	Colloborating and cooperating with industry in the training of technician manpower						
	5	Taking a long range view of technological advances and their impact on training systems a) qualitatively b) quantitatively						
	6	Facilitating rural development						
	7	Developing staff of technician institutions						
	8	Creation of data banks/ information systems						

Ref to Obj.	Sl No.	Question					
3.1 / 11	I.4	What is the extent of fulfilment of each of the following features of existing Policy statements contained in Sl No. I.5? Indicate the extent of fulfilment on the rating scale by placing tick mark in appropriate columns.					
		Aspects	Extent to which Policy Statements fulfil the Aspect				
			Low 1	2	3	4	High 5
	1	Gives clear idea of the quantitative need					
	.2	Gives clear idea of the qualitative need					
	3	Is timebound					
	4	Is linked to budget allocation					
	5	Gives clear directions to implementors					
	6	Extent of delegation of authority to subsidiary levels clear					
	7	Contains clear definition of what is meant to be successful implementation of policy					
	8	Clear statements of monitoring mechanism					
	9	Clear indicators of data banks/ Information systems					
3.6 / 20	I.5	What is the level of satisfaction as regards implementation of existing policies? Encircle appropriate point on the rating scale	Level of Satisfaction: Low 1	2	3	4	High 5



Ref to Obj.	Sl No.	Question						
3.6/23	I.7	What is the current level of strength of linkage between aspects related to policy? Indicate opinions on strengths of linkage on the five point rating scale given for each pair of aspects given below, by placing a tick mark in the column appropriate to your response.						
		Linkages Between	Strength					
			Low 1	2	3	4	High 5	
	1	Needs assessment and goal formulation						
	2	Goal formulation and policy formulation						
	3	Policy formulation and budget allocation						
	4	Policy formulation and policy implementation						
	5	Policy implementation and monitoring of implementation						
	6	Monitoring of implementation and policy review						
	7	Data gathering during policy review and use of such data for formulation of new policy						

II SCHEDULE OF QUESTIONS FOR INTERVIEW AND/OR DOCUMENT ANALYSIS

Ref to Obj.	Sl No.	Question
3.1 / 12	II.1	What are your perceptions of the term "Policy"? What is its purpose? What elements should it ocntain in order to facilitate implementation?
3.1 / 15	II.2	The interviewer to provide the examples of Policy statements obtained from respondents at the National level and State level in response to Q. I.3 and obtain the understanding and interpretation of the respondents of those Policy statements.

Ref to Obj.	Sl No.	Question				
3.6/18	II.3	What are the processes of monitoring policy implementation in these three areas at different levels?				
		Area	Level	Frequency of Feedback	Nature of Feedback	Nature of Follow-up
		1	State			
			Institution			
		2	State			
			Institution			
		3	State			
			Institution			

Example 2