CHAPTER-4

DECISION ANALYSIS

* General and Specific Objectives
* Trainer's Notes and Guidelines
* Self-Learning Package for the Trainees and Assignments

GENERAL OBJECTIVE

The participant will apply Decision Analysis to decision situations arising in familiar projects.

SPECIFIC OBJECTIVE

The participant will:-

(a) Become familiar with the steps of Decision Analysis.

(b) Describe steps involved in Decision Analysis.

(c) Given a decision situation from a familiar project, apply the various steps of Decision Analysis and select one alternative from amongst generated alternatives.

(d) Given a description of an application of Decision Analysis Technique, critique the application.

TRAINER'S NOTES AND GUIDELINES

DECISION ANALYSIS

THEME OF THE CHAPTER

This Chapter deals with a Technique in rational Decision Making. Decision Analysis is a technique which could be used for making a selection from among the available alternatives in a rational way. This technique is based on APEX METHOD of KEPNER AND TREGOE.

Decision Making is undoubtedly one of the more difficult tasks a project manager performs. A systematic and rational approach to Decision Making is necessary and very valuable. Decision Analysis provides such an approach.

PREREQUISITES

- This Chapter is to be taken up only after completion of the chapter on Planning (Chapter - 2).
- Both the Tutor and participants must be familiar with the self learning mode.
- The Tutor must have knowledge of rational Decision Making.
- The participants should have experience in making decisions and some familiarity with the concept of rational Decision Making.
- The Tutor must also be familiar with ;
  - guiding self learning of participants
  - conducting individual and group assignments.

PREPARATORY ACTIVITIES FOR TUTOR

- The Tutor should have thoroughly gone through the learning experiences of this Chapter, including assignments.
- The Tutor should have gone through some Decision Analysis exercises and should have made all the calculations required for making a choice.

INSTRUCTIONAL GUIDELINES

(a) The Chapter consists of two content updates, a model, four illustrations and an assignment. The Tutor must keep in mind that the illustrations are key to effective learning.

(b) The expected time for learning this Chapter is 6 hours. The suggested activity scheduling is as follows:

Sl. No.	Activity	Time Allocation
1.	Self learning upto the application of principles to trek illustration	3/4
2.	Reading Content Update I and Tutor explanation, using OHP Transparency 4.1	3/4
3.	Self learning upto the end of second illustration	3/4
4.	Content Update II reading and Tutor explanation	1/2
5.	Self learning upto Assignment with Tutor's explanation of Model for Decision Analysis in Summary	1 1/2
6.	Assignment	1 3/4

(c) The Tutor while introducing the Chapter will link this Chapter with the appropriate stage in Planning and briefly mention the purpose of Decision Analysis by providing small day to day examples.

(d) The Tutor's role in self learning of participants is to:

- Explain/clarify learning and resolve difficulties of the participants.
- The Tutor may use OHP/Chalk Board to explain the points to all the participants.

- The Tutor should take special care to ensure understanding of weighting and scoring for WANTS CRITERIA. Tutor must explain using OHP Transparency 4.1 and ensure that participants have understood these concepts properly.

(e) The Tutor should explain Content Updates I and II and by question - answer technique, ensure that the participants have understood the contents, concepts, procedure and mode of weighting, scoring, seriousness/impact and probability. Content Updates I and II should be taken up as per activity schedule given above.

(f) (i) The Tutor can change the project in the assignment if he so desires.

(ii) A small briefing on assignment and on the procedure of group work will be done by the Tutor.

(iii) The Tutor shall divide the participants into two groups (A and B).

(iv) Group A will decide purpose and objectives of festival for group B and vice-versa.

(v) Groups will prepare for collecting information from the other group, and also for the type of the information likely to be demanded by the other group. Time allotted for preparation is half an hour.

(vi) The Tutor may provide assistance to groups whenever necessary.

(vii) After half an hour, both the groups will provide information to each other.

(viii) Groups will go through the information provided by the other group and list additional information necessary.

(ix) Exchange of additional information between the groups will take place.

(x) Groups will work on generating criteria, classifying them and performing the analysis including consideration of adverse consequences. Each group will prepare its recommendations.

(xi) The Tutor should assist groups without imposing his views or becoming a 'member' of the group.

(xii) One member of each group will make presentation of his group work in a plenary session and at the end, summarisation will be done by the Tutor.

(g) Before giving the final assignment the Tutor should use transparency 4.2 to explain briefly all the steps of the process. The Tutor may use question - answer technique to ensure clear understanding of the model components.

SUGGESTED RESPONSES TO ASSIGNMENT

(a) Information on the following aspects may be required/demanded by the groups.

- Who would be participating in the festival ?
- Number of participants
- Duration of festival
- Activities during the festival
- Information on resources which would be made available for the festival.
- Current state of affairs of all the clubs
    - Financial
    - Facilities available
    - Memberships
    - Manpower with experience
    - Experience of organising such activities in the past
    - Reputation
    - Views of the members of the club in general on undertaking project
    - Views of youth on the youth clubs under consideration.

REFERENCES

1. "Management" by J. Stoner and C. Wankel, Prentice Hall of India, Delhi 1988.

2. "The Rational Manager" by C.H.Kepner and B.B. Tregoe, McGraw-Hill, New York, 1965.

3. Instructional Package prepared by Education Management Centre, TTTI, Bhopal for use in departments of the State Government of Madhya Pradesh, India, 1988.

4. "Management-an integrated approach" by Torgerson and Weinstock, Prentice Hall, USA, 1972.

CONTENT UPDATE - I

1. SETTING CRITERIA AGAINST WHICH TO CHOOSE

These are derived from the following:

- Results expected from a decision
- Resources available to implement a decision.

In order to achieve best results possible individual criteria must be clearly established at the outset and information/answers to specific questions applicable to these criteria must be gathered. It is the responsibility of each manager to make his enquiry complete in order that important data will be furnished.

RESOURCES

It is important that capital investment be kept minimum without jeopardising the process. Estimates of projects should be carefully assessed to ensure sufficient funds are available to meet the cost of components of the scheme.

2. CLASSIFY THE CRITERIA ACCORDING TO IMPORTANCE

All the criteria that have been listed will have some degree of influence on a selection. However some will be of absolute and overriding importance and some will be important but not mandatory. Thus criteria could be classified as Musts (essential) and Wants (desirable). The Musts set limits which cannot be violated by any alternative. Must criteria help to recognise and screen out the impossible alternative right at the outset. Capital cost limitations are MUST criteria. This Must should be adhered to rigidly.

Criteria that are Wants do not set absolute limits, but express relative desirability. For instance it is desirable to have minimum river crossings. It is desirable to have minimum hill climbs. Wants criteria are concerned with relative advantages and disadvantages. Some Wants will always be far more important than others and, therefore, it is necessary to use good judgement in assessing the degree of importance. For this it is necessary to weigh each one carefully.

The first step in this weighting process is to establish the position of each Want criterion in relation to the next. This is done by giving it a numerical weight of importance. Weighting can be done by giving the most important Want criterion, a weight of say 10 and then weighting less important criteria relatively, using lower numbers. For example - Opportunities for leadership may be given a weight of 10 and less important Number of river crossings may receive a weight of 6. Judgement as to the weight of each Want criterion is drawn from individual experience and from the experience of others. What is essential is that some assessment of relative importance be made.

EVALUATING ALTERNATIVES AGAINST THE CRITERIA TO MAKE A CHOICE

Now each alternative has to be evaluated against the criteria. This must be done systematically, and each alternative is studied in rotation. On no account must an alternative be checked against more than one criterion at a time.

MUST CRITERIA

Assessment of Must criteria operates on a GO/NO GO basis. If an alternative fails to comply with a Must criteria it must be immediately discarded as NO GO. And no further assessment of this alternative is necessary.

WANT CRITERIA

Those alternatives which meet Must requirements, may be evaluated further against the Want criteria. To judge the performance of each alternative against the Want criteria (criteria attainment), it is necessary to give a score which is set against each criterion separately. As with weighting scoring should range from say 10 to 1. It is essential that the best alternative when checked against a criterion should receive the top score of 10 and others be scored relatively. If two or more alternatives have equal merit, they may receive the same score.

These scores reflect the way that each alternative performs against the specific criterion. They do not reflect the relative importance that has been placed on each objective. Therefore, an overall judgement of the relative worths of each alternative is needed and can be obtained by a weighted score. This weighted score expresses the performance of the alternative with due regard to criterion importance and criterion attainment. Treating each Want criteria in similar manner, columns of weighted score are developed which are finally totalled.

CHOOSE THE BEST ALTERNATIVE AS TENTATIVE DECISION

The alternative that receives the highest weighted score on performance against the criteria is presumably the best selection. However, this is only a tentative decision on the basis of evidence so far considered. It has been checked out as the best of alternatives available, which indicates it will probably be the best choice. However, it will not be a perfect choice. It may only be the least worst of the alternatives under consideration, but it will represent the most favourable balance between good and bad as these have been defined by the criteria set down.

CONTENT UPDATE - II

ASSESS THE ADVERSE CONSEQUENCES FROM THE CHOICE

These alternatives should now be considered for adverse consequences. Each one should be studied independently for potential problems and short-comings.

Not all consequences will be equally threatening to the decision. Some will be more serious than others, if they actually occur. Therefore, the consequences should be weighted in terms of seriousness and impact as the Want criteria were weighted in terms of importance. In addition to seriousness it is necessary to judge how probable any of the consequences are. This is to find out the total degree of threat an alternative poses.

The method employed to arrive at the various threats to a choice is to give rating from 0.1 to 1.0 for probability and from 1 to 10 for seriousness. These two ratings when multipled together will give a value which represents the total degree of threat.

It now becomes necessary to pass judgement since all the facts are available. It is now a question of betting present performance against future problems. By using experience, and common sense an endeavour to achieve the best possible balance is needed.

SELF-LEARNING PACKAGE
AND
TRAINEE'S ASSIGNMENTS

DECISION ANALYSIS

THE FIRST ILLUSTRATION

There was this Youth Coordinator in the district-young, enthusiastic, wanting to do something worthwhile. His earlier attempts had not been very happy experiences. This was not for want of trying. He, the village youth leaders, the urban community lads, they were all interested. But at the 'campaign sites' and the project locations, youth leadership was found 'wanting'. And this Coordinator could not act as leader everywhere. He had his own office to attend to.

So he thought 'Why not concentrate on Leadership Training. The youngsters are good, interested, hardworking. What they need is a set of Leadership Skills. None of them was a born leader. Why not make them into leaders ? '

What he then did was to approach his Counsellor at the capital. The Counsellor got convinced about the need for it. The district belonging to the Coordinator was sensitive and needed youth service and youth contribution. Government interest was high in that area. He said 'Okay . I will support. But what I think you should do is organise an adventure trek for these young fellows. Give them chance to become leaders for different aspects in that trek. And you can guide them. May be the university authorities can be

convinced to lend you a few guides and trainers. Moreover, you need a bit of money for this. Look,I will give you the money, provided you don't waste it on lavish dinners. Use it for something worthwhile'.

Now that support was available, the Coordinator went about looking into details. About 20 potential leaders were there for the trek. This was an ideal number - 15 boys, 5 girls. One trek would be good to start with. If it went off well, then may be one more group activity. But the emphasis would be on 'training by doing'.

Before he could start organizing things, it became necessary to select the trek route. This was a crucial decision. Much depended on the route.

A) This is how he went about selecting the route. First he wrote down the details as he knew them.

- One route had to be chosen.
- Period of trek must be about 20 days: 6-day trek; 1-day rest; 6-day trek; 1-day rest; 5-day trek; 1-day final group camp;
- There must be sufficient variety in the route like a mountain to climb; a river to cross; camping on open ground (if possible); trekking through forest, grassland, halt in village guest houses;

- No cooking was to be done by the trekkers, except in the final group camp. The meals were to be arranged for at appropriately placed villages.
- The 20 with two guides from the University and himself were to stay together from start to finish of trek.
- During the trek leadership would be rotated among all twenty, like for the trek, for food and stay arrangements, for the morning and evening group songs, the final camp, the pre-trek arrangements, and so on.

B. Next, the Coordinator tried to find out which of the three trek routes suited the needs he had noted. His conclusions :

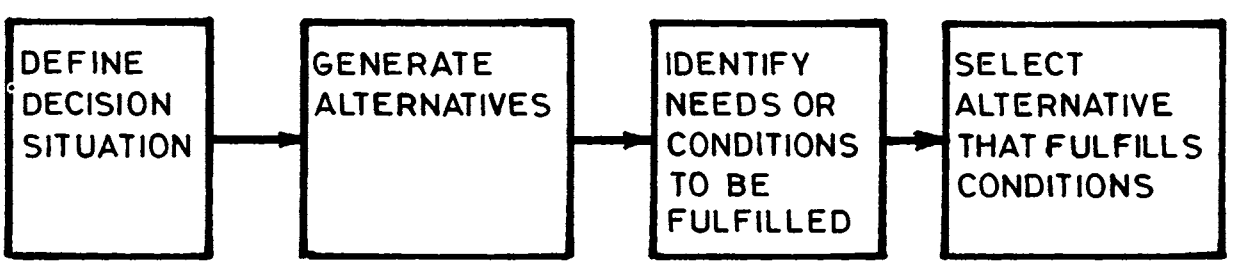
TREK ROUTE ONE - Okay for 20 days, hill climb, forest trek, river crossing, rest places, food arrangements, final camp. In addition beautiful hill country enroute.

TREK ROUTE TWO - Okay for 20 days, many hills and forests, rivers, rest places and food arrangements easily available, final camp place available. Additional advantage was that the trek was close to a main road and help was always available.

TREK ROUTE THREE - Okay for 20 days, hill climb, forest trek, river crossing, rest places, food and final camp arrangements. In addition good forests enroute.

C) The Coordinator got confused next. This was because all routes were equally attractive. It was obvious they would be since they were official trek routes offered by the Government to tourists who wanted to trek. All this analysis only confirmed that any one would do. So the Coordinator selected Trek Route Two by a Lottery.

Why did the whole exercise of selection end in a fiasco? It appeared as if our friend, the Coordinator, started off right by identifying the possible alternatives and then defining needs. May be it would be better if we sequence the steps used by the Coordinator in the decision making process.



When we analyse his approach, it was not bad at all. There appears to be some logic, some rationality, in his 'scheme of thinking'. The spots where the sequence did not work well were in identifying needs and conditions, and in selecting one alternative to fulfill needs and conditions. Let us go through the analysis a little more intently using a process which would be more suited to such selection decisions. In fact the name we attach to such a process is DECISION ANALYSIS.

DECISION STATEMENT - What is the decision to be made ? A single, precise statement providing an answer to this question itself is the Decision Statement.

"SELECTING THE BEST 20-DAY ADVENTURE TREK ROUTE'.
This was the precise decision the Coordinator was trying to make.

GENERATE ALTERNATIVES - These are options to choose from. Making a decision is choosing one alternative or option from a number of alternatives or options.

"In the Adventure Trek case, three options were available i.e. the three trek routes. In a way, the Government had provided these alternatives and the Coordinator accepted them. There could have been more generated but three appeared sufficient to choose from.

For many decisions, unlike the trekking example, alternatives would not be readily available.. They would have to be generated (using creative thinking sometimes). Too many alternatives or options would complicate matters. Very few options will leave little scope for choice. The issue is that a reasonable number must be generated (may be 3 to 5).

GENERATING (IDENTIFYING) NEEDS AND CONDITIONS TO BE FULFILLED

Other terms (in fact more appropriate terms) used for needs and conditions are CRITERIA, or OBJECTIVES. The word CRITERIA is preferable. What are CRITERIA ?

Criteria are requirements specified by the Decision Maker or demanded by the Decision Situation which must be satisfied by the selected option. All criteria or requirements are not of the same type or sort. Some of them are 'overriding'and must be satisfied in their entirety (or in totality). Those options that violate these overriding criteria are to be totally eliminated from further consideration. Such criteria are the 'essentials' or the MUSTS.

There is another category of criteria wherein relaxation of specifications is permissible. These criteria are the 'desirables' or the WANTS. Here the issue becomes one of relative degree or extent of satisfaction of criteria, which implies that options which score more in one WANT criterion are relatively more desirable than others only as far as that particular criterion is concerned.

Some more important points to remember are:

(a) Options have to be compared first against MUSTS. Those which are GO in all MUSTS are then compared against WANTS. Those which are NO GO in a MUST are immediately dropped.

(b) Comparing Options in the WANTS CRITERIA zone is done differently than in the MUSTS zone. Here all the WANTS matter. The alternatives are to be compared against the whole range of WANTS.

(c) Now all WANTS are not the same. Some of them are very significant specifications. Others are less important. Hence the comparison of alternatives is done on the basis of WEIGHTS (for each criteria) and SCORES (for each alternative relative to other alternatives in that criteria). The totals of the WEIGHTED SCORES enable comparison of alternatives. Scoring has always to be in positive terms.

Let us apply these principles to the Trek Case.

CRITERIA GENERATED	MUST	WANT
- 20 day tour		
- 17x20 km of Trekking Available		
- 6 Halt -Villages enroute		
- Food facilities in 6 villages		
- One camping point for final camp		
- At least one river crossing		
- At least one hill climb		
- At least 20 km of forest trek		
- Minimum river crossings		
- Minimum hill climbs		
- Minimum forest trek		
- Panoramic beauty enroute		
- No threat to human life		
- Opportunities for Leadership		
- Guest House Facilities		

CRITERIA		ALTERNATIVES		
		ROUTE ONE	ROUTE TWO	ROUTE THREE
MUSTS				
- 20 DAY TOUR		GO	GO	GO
- 17 DAYS X 20 KM PER DAY		GO	GO	GO
- 6 HALT VILLAGES ENROUTE		GO	GO	GO
- FOOD AVAILABLE IN 6 VILLAGES		GO	GO	GO
- FINAL CAMPING POINT		GO	GO	GO
- ATLEAST 1 RIVER CROSSING		GO	GO	GO
- ATLEAST 20 KM FOREST TREK		GO	GO	GO
- ATLEAST 1 HILL CLIMB		GO	GO	GO
- THREAT TO HUMAN LIFE		GO	GO	NO GO
WANTS	WT			
- Minimum River Crossings	6	8x6=48	3x6=18	
- Minimum Hill Climbs	6	8x6=48	2x6=12	
- Minimum Forest Trek	6	8x6=48	2x6=12	
- Panoramic Beauty Enroute	8	10x8=80	10x8=80	
- Opportunities for Leadership	10	7x10=70	9x10=90	
- Guest House Facilities	3	5x3=15	10x3=30	
TOTAL		309	242	

It is clear that the analysis indicates TREK ROUTE ONE as better. Please note :

(a) When criteria like 'minimum hill climbs' are used, the route with higher hill climbs obtains lesser marks.

(b) Also hill climbs, river crossings and forest treks appear in both MUSTS and WANTS. The idea is that a certain minimum experience was needed (absolutely essential) but too much of it was not wanted.

(c) The scores and weights and, consequently, weighted scores, were arrived at through judgement. This can be subjective (biased). To reduce subjectivity (bias) it is preferable to allot weights and scores for the WANTS in groups rather than individually.

(d) Unfortunately ROUTE THREE became NO GO in the last must Criteria - Threat to life - and was instantly dropped from the proceedings. Only ROUTES ONE and TWO were analysed further.

(e) The listing of criteria is a Creative Activity and could be better done through groups. Classification of Criteria into MUSTS and WANTS is an analytical exercise but, again, group work is recommended for it.

(f) With a bit of practice groups can develop the skill needed to apply this technique (DECISION ANALYSIS). It is highly suited to selection decisions.

One more step that needs to be done after the selection process has been made is in analysis of the ADVERSE CONSEQUENCES.

Let us consider some adverse consequences for the two trekking routes - ONE and TWO.

- Delays in Summoning Assistance - More for ONE
- Lack of Medical Facilities - More for ONE
- Need for Extra Guidance - More for ONE

It is obvious that though ROUTE ONE is better through WANTS CRITERIA it appears to possess more adverse consequences than ROUTE TWO. But if we are confident of preventing these adverse consequences then the problems and adversities reduce.

Prevention is possible through carrying First Aid kits and some patent medicines, and ensuring guides are available.

Hence, if adverse consequences can be prevented, ROUTE ONE is better. On the other hand if the adverse consequences had been very serious then the choice of ROUTE ONE would have posed problems even though its advantages were more (as indicated by WANTS). It is all a matter of judgement, after analysis.

A SECOND ILLUSTRATION - This is a Case Study. My friend tells me it happened, it is true. I never doubted it, or its authenticity. It was a fascinating anecdote for me.

The whole story starts with a group of students - Engineering students - who, as part of National Youth Service Scheme, have to make a compulsory contribution towards rural development during their student days. It is a Governmental directive. There were fifteen students in this group under a Youth Welfare Officer. Many such groups had contributed in the past. But the contributions had been routine and mundane like teaching the farmers about tractor maintenance, cleaning the village streets, may be a feeble and incomplete attempt at adult literacy. In general the students considered the Youth Service Scheme as a sort of 'ritual'. You do it because you are forced to do it. So finish it early. Take up a project which demands little from you and which will soon be forgotten.

But times had changed. The scheme had been reviewed and the demand from the authorities was that the projects should be challenging. Youth interest must not be allowed to fade.

The Youth Welfare Officer was new. He had considerable training and experience in both Youth Welfare and Community Development. He was definitely unhappy with past efforts and experiences. He was interested in generating a success story which would then be used to convince and attract future contribution. He chose this group for generating a successful effort. Actually he made it clear to the group right at the beginning that his expectations were beyond the normal and he expected the group to respond. The group, fortunately for the officer, agreed to collaborate probably more to relieve their boredom rather than for any other reason.

Village 'V' was chosen for their efforts. It was a dull village of 200 inhabitants located on a hillslope. A small rivulet skirted the village. Farming was the main occupation with crops grown in a few valleys near the village. There was electricity available but supply of electricity was restricted and power cuts or breakdowns were not infrequent. Another feature was that the school building was in ruins. It had never been a sturdy building and floods from the skirting rivulet had brought down part of the roof. Literacy was not a great problem. About 30% of the adults (about 40 people) needed it.

The youth group became aware of this information during their first few visits. 'What are the problems that need attention?' they asked the village chieftain. He outlined some:-

(a) Agricultural production was poor, the land was not rich and water for agriculture was scarce except during the monsoon.

(b) The primary school building had to be reconstructed.

(c) In fact all houses in the village needed strengthening since the annual flooding of the rivulet had weakened them. The floods swept right across the village at least four times every monsoon.

(d) Adult literacy,since it was high on Government priority.

(e) Non-Conventional sources of energy had been heard of but no device had reached the village yet.

Considering the interests of the youth group, and the priorities of the village, it was decided that one project would be selected from among four options. The four options were:

OPTION ONE - INSTALL SOLAR ENERGY DEVICES

OPTION TWO - RECONSTRUCT SCHOOL BUILDING

OPTION THREE - ALTERED CROP PATTERNS IN AGRICULTURE

OPTION FOUR - CONDUCTING ADULT LITERACY CLASSES

While the discussion was going on, one member of the group, a Civil Engineering Student suggested -"Why not build a dam across the rivulet ? This will help agriculture. Further the damage to buildings and the annual evacuation of villagers during floods will go. It will also provide plenty of water for domestic use'. It was agreed that this was a good suggestion. The village elders also liked it. It became the fifth option.

OPTION FIVE - DAM THE RIVULET AND USE STORED WATER FOR MULTIPLE PURPOSES.

With five options created, the criteria to compare them were formulated. The end product was as follows.

MUSTS CRITERIA	WANTS CRITERIA
(1) Acceptance by villagers	- Low investment
(2) Acceptance by Youth Group	- Scope for voluntary work by village residents
(3) Completion within one year	- Use of local resources
	- Increase in income
	- Generation of employment
	- Increase in literacy
	- Creation of shelter
	- Loss to village reduced
	- Village safety increased
	- External Agencies involved less.

There is no point in going through the whole analysis in this case. Only a few points must be made. Firstly all five passed the Musts Criteria. When the WANTS criteria were applied, OPTION FIVE outscored all the other options by

a considerable margin. But then adverse consequences were yet to be considered. It was decided that they will only be calculated for OPTION FIVE and extended to others only if necessary. Adverse consequences for option Five were:

- Design difficulties
- Procuring the six or seven bags of cement needed
- Regular visits to village by youth group needed at least during construction.

The adverse consequences were not considered serious. Designs were to be done by the Civil Engineering students with the help of a Professor (who agreed). The bags of cement were readily donated by a landlord living nearby. And a phased visit programme was drawn up by the group so that at least two or three members would be present near the dam site during construction.

Plans were made. Designs were formulated. In 9 months the dam and the other works were completed. You know the dam is still there.

A THIRD ILLUSTRATION

In this example a selection of one person is to be made from among three prospective candidates for Youth Exchange Mission. The Youth Officer, responsible for the selection mad4e this analysis, and the criteria and judgements are his and his alone. Another person may arrive at a different result.

This illustration has been provided to highlight the process of using MUSTS and WANTS. You will observe that no Adverse Consequences have been considered.

DECISION STATEMENT - Selecting the best available Youth Volunteer for a Youth Exchange Mission.

OPTIONS - YOUTH VOLUNTEERS - ONE, TWO AND THREE.

CRITERIA	WT	VOLUNTEERS ONE	TWO	THREE
MUSTS				
- Between 21 years and 30 years of age		GO	GO	GO
- Completed High School		GO	GO	GO
- Can speak and write English		GO	GO	GO
- Has no Police Record		GO	NO GO	GO
WANTS	WT			
- Higher Studies in the Liberal Arts	5	10x5=50		5x5=25
- Hobbies	7	4x7=28		10x7=70
- Awareness of culture of host country	6	9x6=54		3x6=18
- Adjust to different food habits	2	2x2=04		10x2=20
- Physical fitness	8	6x8=48		9x8=72
- Can speak fluently on Youth Services and Problems	9	10x9=90		5x9=45
- Will be spared by employer for mission	4	5x4=20		8x4=32
TOTAL		294		282

CANDIDATE ONE APPEARS MORE SUITED.

A FOURTH ILLUSTRATION

This illustration has been provided to explain in detail the application of the technique of Decision Analysis. Included within the analysis are the details of the scoring approaches in WANTS and ADVERSE CONSEQUENCES. It is quite possible that there may not be an agreement on the list of criteria generated, their classification, and even on the weights assigned to different criteria. However, the basic purpose is to illustrate details of the technique rather than to justify the selection of any of the alternatives given in the illustration.

DECISION STATEMENT - Selecting the type of people to be counselled by the 'Counselling Cell for Delinquent Youth' in the initial period of its existence.

OPTIONS

A - Cell for Boys only

B - Cell for Girls only

C - Cell for Boys and Girls combined

CRITERIA		OPTIONS A	OPTIONS B	OPTIONS C
MUSTS				
- Agreement of elders		GO	GO	GO
- Cost limit of establishing Cell		GO	GO	GO
- Availability of support from voluntary agencies		GO	GO	GO
- Acceptability of Counselling Cell		GO	GO	NO GO
WANTS	WTS			
- Number of youth to be counselled	7	8x7=56	7x7=49	
- Percentage of delinquency	8	9x8=72	6x8=48	
- Expertise available for counselling	9	5x9=45	7x9=63	
- Expansion of youth activities	3	3x3=9	3x3=9	
- Medical facilities available	6	4x6=24	4x6=24	
- Media available	4	3x4=12	3x4=12	
- Other resources	5	4x5=20	3x5=15	
TOTAL		+238	+220	

ADVERSE CONSEQUENCES	SERIOUSNESS AND IMPACT	OPTIONS A	OPTIONS B
- Interference from interest groups	8	0.2X8=1.6	0.4X8=3.2
- Credibility of counsellor	7	0.3x7=2.1	0.2x7=1.4
- Inadequate time available for counselling	6	0.1x6=0.6	0.3x6=1.8
- Interference by other voluntary agencies	3	0.2x3=0.6	0.3x3=0.9
	TOTAL	- 4.9	-7.3

FINAL POSITION

	OPTIONS A	OPTIONS B
WANTS	+238	+220
ADVERSE CONSEQUENCES	-4.9	-7.3

OPTION 'A' APPEARS MORE SUITED

APPLICATIONS

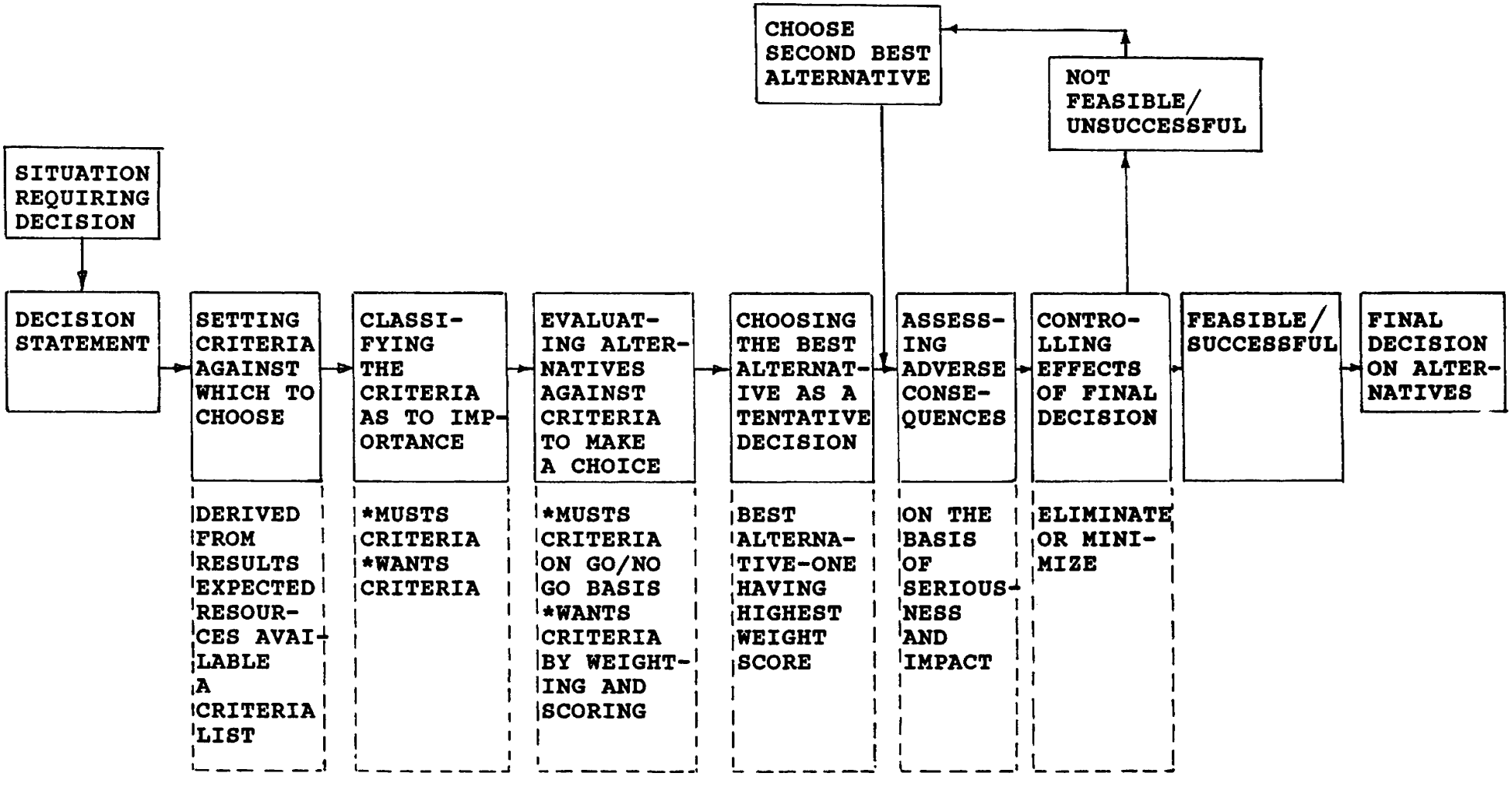
Decision Analysis can be applied to a wide variety of selection situations arising in projects as well as in small activities. When selections of people, locations, equipment, projects, and agencies are to be made Decision Analysis can prove helpful. However, when detailed strategies are to be identified and formulated the technique may not help much.

One great advantage that Decision Analysis appears to provide is the detail which gets generated in the use of the technique. These details could be used for justifying the selection in a proposal on the project. In fact there are certain similarities between Decision Analysis and the approach of Cost Benefit Analysis (Chapter - 5).

One point to keep in mind is that the use of the technique requires detailed information. If information is not available then some assumptions will have to be made. This may not be very accurate and may emerge out of bias and personal views. Group work will tend to reduce these difficulties as it would make the judgements involved more 'objective' than 'subjective'. The Chapter on Working in Groups (Chapter - 9) can be helpful to the process.

In case information is not available it is very easy to conclude that the technique is not applicable. This is what precisely should not happen. The rationality behind the technique cannot be substituted by selection through 'rough guesses' or by 'intuition'. Using the technique inspite of lack of information is better than not using the technique at all. A diagram indicating the model appears in the next page.

MODEL FOR DECISION ANALYSIS



ASSIGNMENT

A Youth Festival is to occur within the next three months. It has to be organised at one out of four youth clubs in the area.

Participants shall be divided in two Groups A and B. Group 'A' will generate information to be used by Group 'B' to make a selection and vice versa. This information should be adequate to apply the technique of Decision Analysis in making the selection. After Groups A and B have made their selections they will justify them to each other (In case some information is to be assumed the groups may do so during their analysis).

*****