Conclusion: Researching designing and running case study simulations

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The preceding chapters have provided the background and operational guidance necessary to enable the reader to run a set of simulations concerning different aspects of planning and development. To varying degrees, all these simulations have been built around detailed research into the dynamics and mechanics of development in selected case study areas. In this concluding chapter, a case study research and game design method is outlined to help readers prepare and run their own games.

Case study research

1.1 General background

Case study simulations can either be retrospective, futuristic or atemporal, but in any case, it is likely that they will start with a real-life situation of 'development on the ground' at some time or other. For example, in the Cofferidge Close Game (Chapter 2), the starting point is the early 1970s, whilst in the Docklands Enterprise Zone Game (Chapter 3), it is the early 1980s. From here, a game will centre on what might be termed the 'change process', i.e. the planning, implementation and functioning of development over a set time period, incorporating all associated technical, administrative and political decision-making. Before such games can be built, this change process must be researched and analysed.

Case study methods are particularly useful for researching such change processes. Nisbett and Watt, for example, point out the importance of the flexibility and adaptability that case study research facilitates, stressing a case study's 'capacity to take into account the uncontrolled variables, those aspects of a situation - often important ones - which you have not clearly foreseen at the time when you began to gather your data' [1]. This freedom to 'follow one's nose' has been termed 'theoretical sampling' by Glaser and Strauss, enabling the researcher to 'jointly collect, code and analyse his data, and then decide what data to collect next and where to find them' [2]. In similar vein, Hamnett has praised the facility of case studies 'to move with events its dynamic character - and the way in which it has proved possible to integrate historical material, secondary sources, participant interviews and the perceptions of various actors in the case.' [3]

The realism, incisiveness and flexibility of case study research

make it a particularly valuable approach for researching the dynamics of change processes. Indeed some argue that such processes can only be investigated through case studies. Walton, for example, asserts that 'the case study can attend to aspects of a change programme which other methodologies cannot; namely processes of change and of change interventions [4]. To do this effectively, Walton concludes case studies must:

1. Contain longitudinal data from each of several phases preintervention, intervention, post-intervention.
2. Contain a rigorous description of the process, especially during the intervention phase.
3. Conceptualize and theorize about the process itself, e.g. the place of interactions, phases, critical incidents and their effect on subsequent attitudes and actions.

The following section develops this theme further into a more detailed set of guidelines for undertaking case study research.

1.2 Guidelines for case study research

Recent attention by educational researchers on case study methods has produced attempts to define 'case study', and it is perhaps worth briefly pursuing this here. Adelman et al. see case study as 'an umbrella term for a family of research methods, having in common the decision to focus an enquiry around an instance' [5], whilst Nisbett and Watt note that a case study must be 'more than just an extended example or an anecdote interestingly narrated. It must have interest, relevance and a sense of reality, but it must go beyond mere illustration.' [6] They go on to stress that evidence must be gathered systematically and presented in a way that demonstrates the interaction of factors and events. The case study reveals, then, as Oscar Lewis has pointed out, 'what institutions mean to individuals, and helps us to get beyond form and structure to the realities of human life, or, to use Manlinowski's term, it puts flesh and blood on the skeleton' [7].

What follows below is a set of guidelines for employing one such research method (Fig. 9.1) to compile data-base case studies; these, in their turn, were used as the basis for the simulations designed or co-designed by the editor. Some illustration of how the approach may be used in practice is given with reference to the fictitious Mediterranean island of Gozalta (Fig. 9.2). This may be taken as a typical small Mediterranean island which has experienced rapid tourist development over the past decade with consequent pressures on the local ecosystem

and new dangers to environmental standards. No significance should be attached to the selection of this example; it is merely illustrative, and an industrial area in north London, for example, could equally well serve the purpose.

(a)*Establish rudimentary conceptual framework/loose hypothesis formulation*

In an initial stage, researchers must discuss basic concepts and work towards some loose hypothesis formulation. If we take the fictitious island of Gozalta, the following sort of loose hypothesis might be postulated as the basis for subsequent case study research:

1. Extensions of the built-up area since 1961 have largely constituted tourist development.
2. In the planning and implementation of this development, scant regard has been paid to the existing planning machinery.
3. There has been no consideration of the impact of new development on the functioning of local ecosystems; this has resulted in a lessening of species variety and imbalances between different trophic levels in the food chain in certain areas.
4. Recent tourist development has produced an increase in summer season employment opportunities for the local populous.
5. Infrastructural development within and between the areas developed since 1961 is inadequate.
6. The demand for agricultural produce created by new development since 1961 has acted as a stimulus for agricultural production on the island.

(b)*Selection of case studies*

Once initial hypotheses have been formulated, a case or cases can be provisionally selected. This is essentially a pragmatic process which must take account of the availability of data and data sources, and the general 'manageability' of the case. At the same time, however, an attempt should be made to ensure that the case or cases encompass a satisfactory range of key variables; this is more likely to be so if different types of development are included in a set of case studies.

In Gozalta town (Fig. 9.3), for example, a set of four case studies might be selected to include hotel, villa and marina development. Other cases in Gozalta, or in other settlements on the island, might focus on additional types of development, such as sewerage works, shopping areas or public buildings. Some cases may be discarded and others taken on board as research progresses, and new information sources and lines of enquiry are identified.

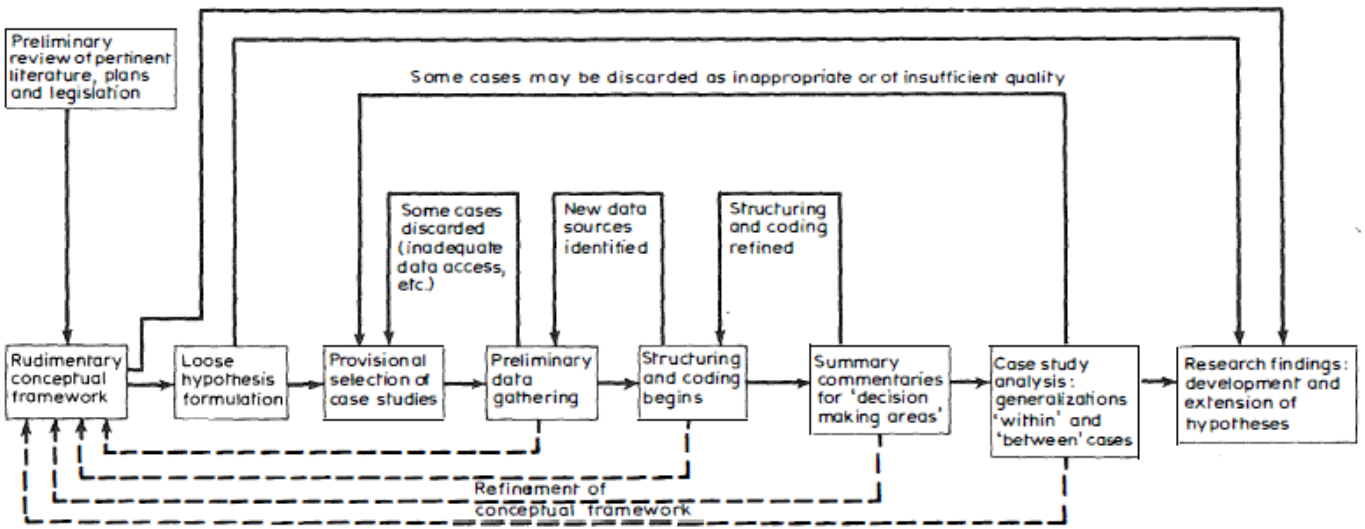

Fig. 9.1 Main stages in a case study research method.

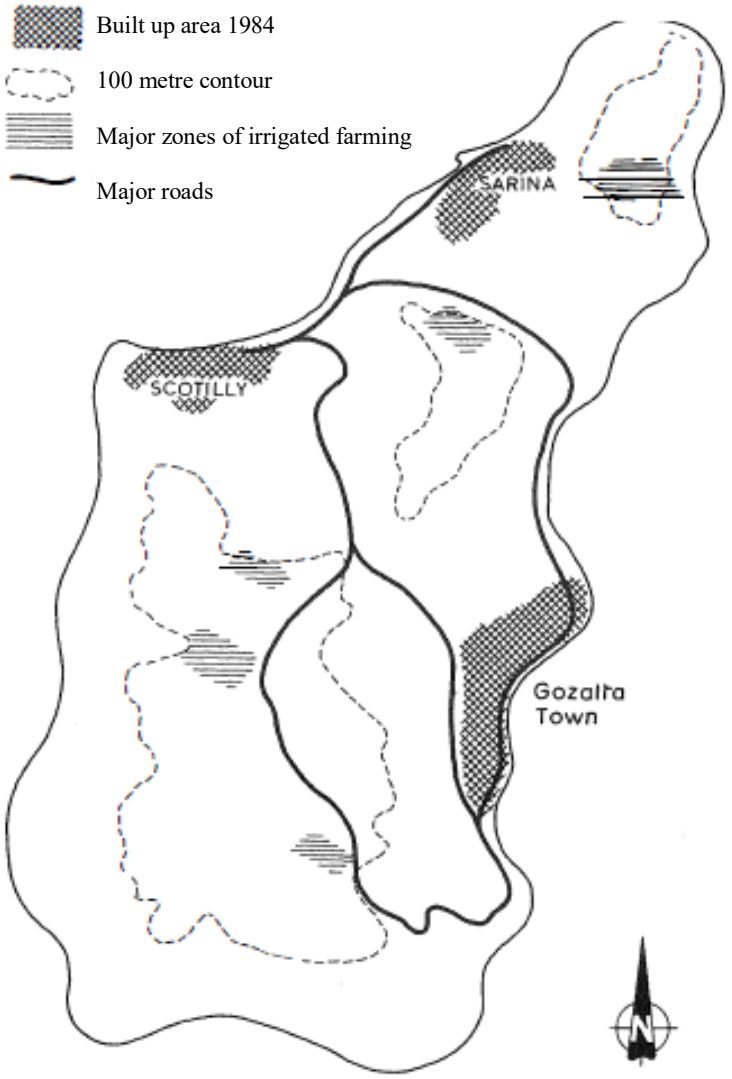

Fig 9.2 The Mediterranean Island of Gozalta (fictitious). Population 1984: 15 000.

(c)*Data collection and structuring*

Preliminary data collection will most likely be somewhat haphazard. Almost any data which have some bearing on one or other of the cases can be included in the draft data-bases. For example, land-use and land-ownership plans of Gozalta island would be included in the *introductory* section of each case, as would some information on such things as local history, local government structure and finances, national tourist policies and trends, etc. For each case, then, a data-base is assembled that can incorporate any data deemed relevant by the research team.

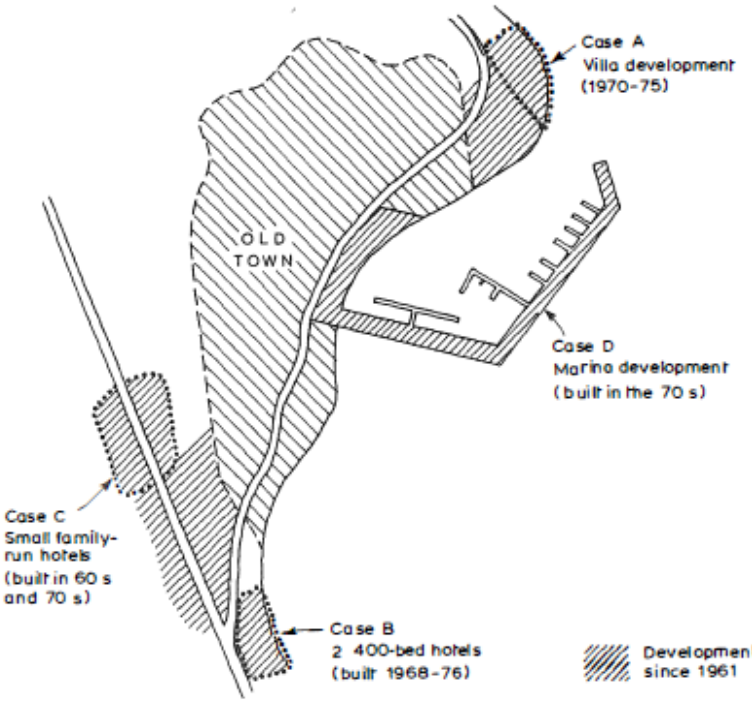

Fig. 9.3 Field sketch of possible case studies in Gozalta town

Let us take, for example, case A in Gozalta Town. A planner will most likely consider examination of the decision-making process important. He can thus attempt, through data-searches and interviews with key personnel, to trace the course of decisions and events which corresponded to development on the ground taking place. Each piece of data, be it a report of an interview, council memo, developer's plan or investment figures, is included in roughly chronological order in a data base. On the other hand, an ecologically orientated researcher might choose to attempt to establish, from documentary and photographic evidence, and from local resident interviews and field tests, the impact of villa development on species variety on the land, and on trophic levels in the food chain in the sea immediate to the case study area. At times, of course, an island or national perspective may have to be taken to gain the complete picture (e.g. changes in national legislation, construction of new service systems). All such data can similarly be included in the data-base for each case.

As the data-base is compiled, certain 'stages' in the change process are likely to emerge. These are not rigorously defined units, but constitute

rather a loose initial structuring of available data, to act as a framework for subsequent analysis, hypothesis development and game structuring. For each stage, brief commentaries can be written to summarize the content and context of data. It may be that, at an early stage, it will become dear that different aspects of change proceed in parallel; but an attempt should still be made to structure the entire case in a roughly chronological order, although stages are likely to be overlapping and at times seemingly unrelated. This, however, is to be expected; subsequent analysis will attempt to examine links between these different sub-processes in the overall process of change.

(d)*Data analysis*

The analysis of data-bases and development of hypotheses is a cyclical, iterative process in keeping with the open-endedness of the case study approach. As Berelson [8] has pointed out, the constant review and redesign of analytical methods is a well-known and normal tendency in qualitative research, and this is indeed true to the case study approach. As analysis proceeds, the data-bases may be edited and restructured and commentary 'link' pages rewritten.

A variety of analytical aids may be introduced, and much here depends on the nature of the cases, the data, the hypothesis, and research experience held by the team. Graphic representations of decision-making event-sequences and change processes can help identify linkages and repercussions, and stimulate hypothesis development.

Such graphic conceptualizations of the change process stem directly from the structuring of the data base. In case study A, on Gozalta, for example, the researchers may have compiled a data-base of 32 stages, let us say. They may then embark on attempting to group these stages into different sub-processes, which will often be overlapping (Fig. 9.4), and links *between* and *within* these process flows can be examined in the light of postulated hypotheses. A variation on this form of *process flow chart* is the *decision stage chart* in which major decisions are identified within the change process, and these are similarly mapped. Again the links between different decisions and events can be examined to advance postulated hypotheses and develop new ones. Figure 9.5 shows a decision-stage chart taken from the Buildings case study (see Chapter 4).

Finally, it is worth stressing that these are essentially analytical aids which can be used to develop and graphically illustrate research findings for a case study. At the same time they can be used to stimulate discussion and argument amongst and between researchers and outside personnel, whose opinions and perspectives should be taken into account in the interpretation

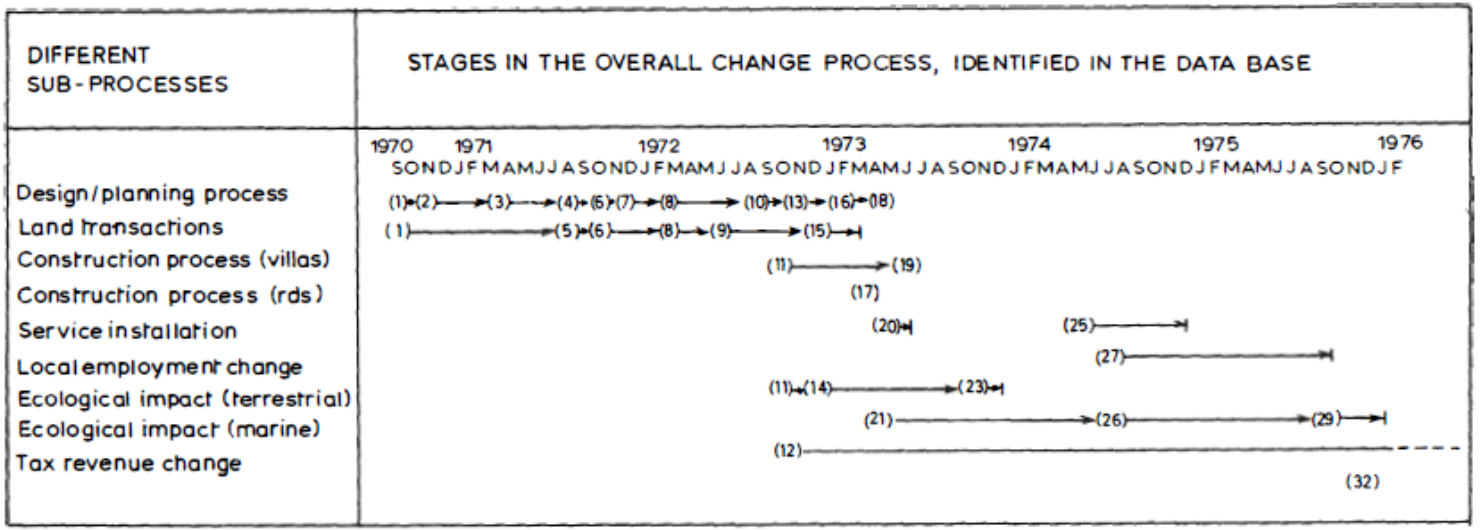

Fig. 9.4 Process flow chart for Gozalta case study A.

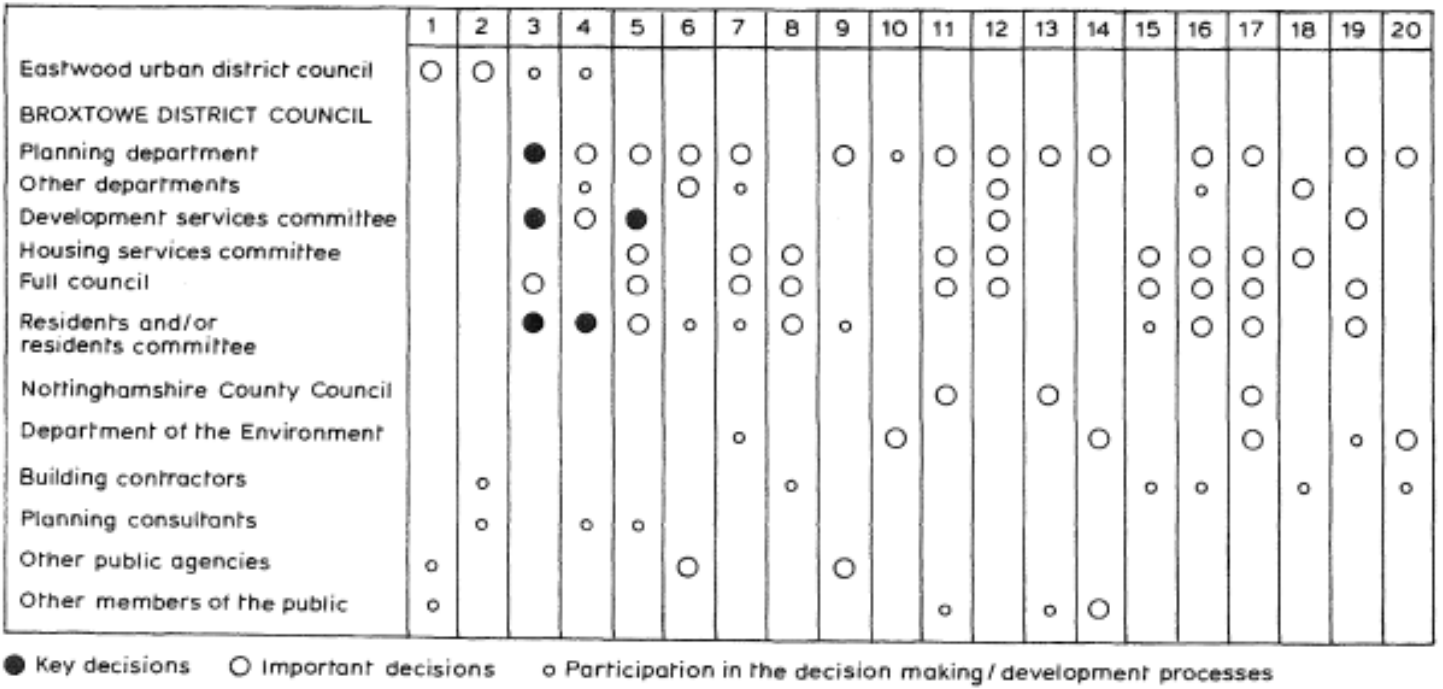

Fig 9.5 Decision-stage chart taken from the Buildings casestudy.

of data, and final assessment of the case study as a whole.

9.2 The design of a case study simulation

Once a case study data-base has been compiled, this can be used as the basis for case study game design. Many authors and game designers have attempted to establish rules and procedures for the design of such simulations [9-18]. Duke, for example, set out 'nine steps' for game designers [10]. Whilst prepared to defend these nine steps as 'carefully thought through and useful', he readily admitted that

> the simple, eloquent truth seems to be that no matter who describes the problem, sooner or later it boils down to 'Go build the game', at which point the designer is forced to resort to his or her own intuition and/or to the format of some other game that might suggest itself from previous experience [9].

The last comment is probably one of the most valid to bear in mind when designing games, and what follows is merely a set of guidelines derived from the author's own experience in case study game design. Other designers, such as Romanos and Loukissas, are likely to have their own particular format for design and operation, and what follows concerns only the editor's work in the field.

This experience suggests that game design is best thought of as an iterative, cyclical process which centres on trying to create and match a manageable, workable simulation with a researched case study. In addition to adhering to the guidelines which follow, it has also proved advantageous to work in a team of at least two, and preferably three, people, so that ideas can be 'bounced off' each other; and whilst every effort should be made to provide a game framework representing an often extremely complex reality, it must be realized that some simplification cannot be avoided, and should not be shunned. If the simulation becomes so complex as to be unworkable, cut out some of the detail, intricacies or whatever. They can always be added again later, if need be.

As Fig. 9.6 shows, four main 'areas' in case study game design can be identified, which are discussed in turn below.

9.2.1 Mapping the change process

The first stage in the cyclical design process centres on mapping out what changes in the initial developmental, institutional, planning,

Fig. 9.6 The cyclical nature of case study game design.

etc., situation are likely to take place in the game. From a structured case study data-base, it is often worthwhile to attempt to divide the flow of events into several major chronological 'phases' differentiated by significant change in some parameter or aspect of the case, e.g. new development on the ground, change in institutional framework, a key decision with wide-ranging repercussions by a major actor. These may represent individual decision-making stages identified in the research stage, or may consist of groupings of several decisions or events. They will, to some extent, be arbitrary and artificial, but are useful as an enabling mechanism facilitating a loose structuring of the case around which the game can be built. They are also likely to change several times in the course of game design, and can be

orientated to aid the running and manageability of the simulation. In the Buildings Game (Chapter 4) for example, the three major phases of the game are:

1. Group meetings: development of general strategies.
2. Consultation and the design process.
3. Public exhibition and resident voting.

In reality, as can be imagined, the first two were very much overlapping and interconnected, but such a segregation of activities is often necessary to help make the simulation workable in practice.

With forward looking or atemporal cases, in which the change process is envisaged rather than known from fact, the outcome and structuring of the game are likely to be more open, and a division of the simulation into 'rounds' is more appropriate. Unlike the 'phases' in a known retrospective case study, 'rounds' will be similar in structure and/or represent a repeating, constant time sequence. In the Docklands Enterprise Zone Game (Chapter 3), for example, each round represents one year in the development of the Isle of Dogs through the 1980s; and in the Hackney Partnership Game (Chapter 6), rounds are a succession of Partnership Groupings in which the aims of objectives of group members are similar from round to round, albeit within different interpersonal, financial and planning contexts.

Essentially the designers must try to establish the main flow of events in the development process as it occurred or is likely to occur in the case study. The type of developments which particularly lend themselves to this form of game building are those set within manageable time and space frameworks, such as housing or industrial estates, tourist complexes, city-centre renewal schemes, housing rehabilitation schemes, community installations, etc.

As already noted, detailed case study research may precede the building of the game, and provide the in-depth analysis of the change process on which the simulation can be structured. A simple check-list of the type of factors that should be established would include:

1. The time and space frameworks within which the case study is set.
2. The major agencies in the case study.
3. The changes in 'development on the ground' that take place.
4. The sources of funding for such development.
5. The major plans and planning regulations of relevance to the case.

From here, a set of leading questions that might help stimulate relevant thinking would include:

1. Who are the major agencies involved in promoting and financing the scheme?
2. What role do the planning authority and public authorities play in regulating development?
3. Who benefits from the development? Who lives, works or shops here?
4. What attitude do various interest groups have with regards to the development?
5. Is the development in line with an approved plan? Is it necessary for a special plan to be drawn-up and approved for the development to take place? Is the development in line with this plan?
6. Who are the main agencies involved in implementing the proposal? Who are the builders?
7. How much does the scheme cost?
8. Who provides the major services and infrastructure? Are there problems with co-ordinating implementation?
9. Etc., etc.

It is this type of approach, then, which must clearly be adapted to each individual case, that will help map out the change process around which the simulation is to be built. The following three main interrelated procedures then develop this initial activity and will inevitably involve reshaping and amendment as the game design process progresses.

9.2.2 Identify major actors and write role briefs

Once the major actors in the case study have been identified, consideration must be given to selection and emphasis in the simulation. Sometimes it is useful to build the game on just one part (i.e. one chronological section) of the change process depicted in the case study, because the case as a whole may be too complex. Similarly, certain minor actors may be omitted from the game, and extra media or outside agencies can be added if it helps to foster inter-agency communication in the game itself. Some role players may work together in teams in the game (e.g. Local Authority Planner, and his Design Assistant) whilst others, although interacting with other participants, may make decisions individually.

Once the major role playing teams and individuals have been identified, provisional role briefs can be written for each role. These are only provisional because, as Fig. 9.6 indicates, the whole process

of game design is a cyclical, iterative one, and all aspects of the game are likely to be amended more than once in the preparatory period. As a general rule, role briefs should be not too long or complex, being perhaps one or two paragraphs at most per role-player.

9.2.3 Identify development components: design game board and pieces

The writing of role-briefs is likely to help clarify what different agencies are likely *to do* in the game. The major visual focus of the game will usually be the game board, and the use of representative pieces to simulate the growth of the built-up area as the game progresses. Here, then, the designer must attempt to provide some simplified representation of the case area and of the functional components of development which feature in the change process (e.g. housing, possibly sub-classified, industry, green space, hospitals, roads, etc., etc.).

A useful aid is to establish the smallest component, in terms of ground space, which you wish to feature in the game (e.g. 1 unit of industrial floor space, covering a ground area of $100m^2$; or 1 unit of public housing, covering ground space of $50m^2$, etc.); then, divide the case area into a grid of units of this ground space and use this as the basis for the game board design. Similarly, all other representative pieces can be multiples of this unit size.

9.2.4 Visualize game procedure: write out step by step guide

This final stage in game design is the most critical and probably the most difficult. Taking the role briefs, the game board and representative pieces, the designer must try to envisage how he wishes the game to proceed (based on his original mapping of the change process). Here, then, he must go through a series of checks and rechecks to ensure that role-briefs, game board, etc., are appropriately designed to channel the game in the desired direction. Other gaming elements, such as changes in the background scenario and entry of new roles, can be planned, and financial returns, interest rates and other parameters can be finalized once the designer has the full 'vision' of the game in his mind. The designer may also wish to consider at this stage whether some model - procedural, economic or whatever - is to be built into the game and how this is to be tied in with the operation of the game.

At the same time, of course, it must be remembered that when the game is played, participants should be left a certain freedom of choice to make their own decisions within the constraints imposed by their role- briefs and the directives established in the game procedure. (This

may be handed out, shown on overhead projector or communicated orally, step by step.) It is really a matter, then, of striking the right balance between regulating the game (through role-briefs and game procedure stipulations) sufficiently to provide a viable framework for simulating the case study, and yet giving participants enough freedom of action to make decisions and thus ensure the heuristic and interactive learning which is central to gaming simulation. It is not always easy to achieve this balance, and, as already noted, it is likely to take several cyclical design modifications (prior to actually playing the game) before a satisfactory end product is achieved.

9.2.5 General operational guidance

The preceding chapters contain full detail on game procedure for each of the simulations described. Each game differs somewhat in format and operation, but the following general guidance notes may be useful for those embarking on game design and/or operation for the first time.

1. Prepare role-briefs, role badges, team sign plates, game boards, representative pieces, etc. Arrange room accordingly.
2. It is often useful to give an introductory talk of 30-60 minutes on:
   (a) The simulation exercise in general.
   (b) The case study which is to form the basis of the game - without giving away too many secrets of who does what, when, why and how. These are things which should be revealed in the game itself.
3. Assign roles, give out role-briefs and other necessary handouts, explain game board as appropriate, and let participants get on with it!
4. Introduce 'Game Procedure' steps as necessary. Be available to chivvy and push participants along as necessary. Introduce changes in background scenario, financial parameters, etc., as planned.
5. Be prepared to call a halt to the simulation for 'intermediary' feedback sessions if it seems advisable to clarify participants' thinking and stimulate new developments.
6. Final debriefing. Use questionnaires to gauge participant response to the game technique and to monitor what they have learnt. Then go through the game step by step and compare it with what else might have happened or did happen in the real-life case study (Fig. 9.7). This not only stimulates further discussion and self-questioning, but also gives all participants a synoptic view of both the simulated and real-life change processes.

Here, it is worth bearing in mind that there is usually no one 'correct'

answer to a case study simulation, and participants' actions and decisions may be equally or more valid than what has happened in a real case. What simulations provide is an insight into how and why such decisions are made, an experience reinforced and enriched for the players by having faced the decision-making dilemmas themselves, albeit in a simulated risk-free environment. As recently noted elsewhere, 'an educational simulation should not be the reproduction of a system given to students to digest, but rather given to them so that, by exploration and manipulation, they can "discover" the system's behaviour' [19].

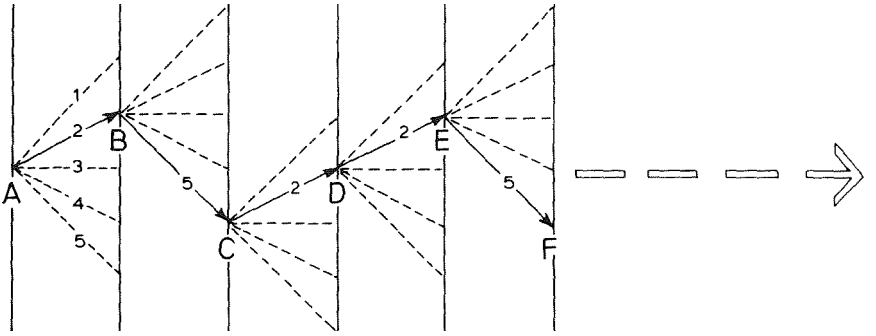

Fig. 9.7 Decision-making options in a case study. Solid lines represent *made* decisions, broken lines decision options *not* taken. The decision-course of case study simulation may differ from run to run and from game to reality. Feedback sessions can thus focus on decision-options and possible alternative outcomes.

Finally, it is worth returning to our point of departure - the dearth of effective operator's manuals. Fennessey notes that 'the effectiveness of a game depends not only upon the game mechanics, but also upon the way in which the game is actually used. Therefore, the thoroughness, clarity and consistency of this communication between designer and user may mean the difference between a user's having a positive or a negative experience with the game' [20]. Once the game has been designed, run and tested, a comprehensive and well-written manual will help the dissemination of the game and its operation by others. To this end, it is hoped that the method, format and material included in this book may usefully act as a model to be adapted to different circumstances by others working in the field.

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