

# TEACHER'S GUIDE

## THE NEW ZEALAND FUTURES GAME



GRAEME SCOTT

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Graeme Scott is a Research Fellow  
in Environmental Education at the  
Joint Centre for Environmental  
Sciences at the University of  
Canterbury and Lincoln College.

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## INTRODUCTION

The New Zealand Futures Game is a classroom exercise based on current perceptions of future trends in population growth, economic growth and environmental quality. For the purpose of the game, "The Future" is defined as being 50 years from now. The game kit is capable of being used in a number of different ways. In the basic game students make a series of resource-demand decisions followed by a series of population growth decisions. As a consequence of these decisions they select one of 12 future scenarios, each of which describes the future New Zealand that would result if many New Zealanders made the same decisions as they did.

Follow-up activities include:

- Obtaining a "class future", which illustrates the way in which our future can be the product of many individual, often conflicting, decisions.
- Selecting a "preferred future" from the 12 scenarios. This valuable activity concludes with students working back from their selected future to identify both the decisions that are essential to that future and the decisions that must be avoided if that future is to be a reality.
- Comparing their aspirations for New Zealand with those of other social groups, e.g., parents, planners, people with a particular future philosophy.

## OBJECTIVES

After using the New Zealand Futures Game students will be able to:

1. Comprehend that there are a number of possible futures open to New Zealand.
2. Comprehend how their "life decisions" influence New Zealand's future.
3. Comprehend the consequences of different value systems.
4. Analyse the relationship between population growth, economic growth and environmental quality.
5. Identify the characteristics of the future that they would prefer.
6. Evaluate the different courses of action open to New Zealand, and:
7. Synthesise decisions leading towards their preferred future.

## INTEGRATING THE GAME INTO YOUR TEACHING PROGRAMME

The New Zealand Futures Game was conceived and written as a resource for the 4th Form Social Studies syllabus. However, during classroom testing it became clear that the game is universal in its application within High Schools. In particular, students in 6th and 7th Forms gain a great deal from the game - especially if given the opportunity to pursue some of the issues (like population projections or resource depletion) in greater depth. Since the basis of the game is energy supply and demand, some knowledge outcomes fit in well with objectives of junior High School Science courses. The game can also provide a stimulating point of contact between School and Parents.

### A checklist of possible applications

#### A. In 4th Form Social Studies

1. As an ignition or a summation of a study of the impact of social change on peoples' lives.
2. As a contribution to developing important ideas about:
  - changes in society sought or brought about by the application of science and technology in e.g. environment and resources work and leisure
  - the relationship between people's choices and social changes(Refer Syllabus Guidelines, Pages 18-19)

#### B. In 7th Form Geography

- As a contribution to the concept of change and some important geographical ideas. Refer draft National Guidelines 4.2; 4.3;
- The causes and consequences of growth in resource demand.
  - The environmental effects of human population growth.
  - The effects of immigration on the future of our country.

#### C. In 7th Form Biology

- As a contribution to the syllabus topics C<sub>2</sub> and C<sub>3</sub>:
- The consequence of Man's evolution (population growth and modification of the biosphere).
  - The future of Man and the biosphere.

#### D. In 3rd or 4th Form Science

As a contribution to the syllabus, section 12 (Man's environment and his efforts to control it).

#### E. In 5th Form Science

As an introduction to energy studies using "Energy, New Zealand's Future" by M.L. Jansen.

#### F. In Liberal Studies

As all, or part, of a topic on aspects of the future.

### To cut or not to cut

One of the key ideas behind the New Zealand Futures Game is that students should assemble a set of cards representing their personal effect on the future. However, during classroom testing it became clear that the large number of small cards created some classroom problems - particularly for teachers working with less able classes.

For this reason, the game has been published with the product cards, immigration cards and child cards printed in sets, and uncut. You should decide whether it best suits your needs to leave the cards in sets, or to cut up the sets into individual cards and thus to permit students to assemble and work with their own personal future.

### USING THE NEW ZEALAND FUTURES GAME

Our classroom testing programme has indicated that the New Zealand Futures Game is a stimulating and effective educational device. But, please do not over-use it. It gains nothing by repetition. Select one curriculum where its use best satisfies your needs and restrict its use to that area.

Regard the game as a springboard to a week (or more) of future planning. Employ the activities schedule outlined below if you wish, but feel free to experiment with using the game in different ways - with individuals, groups, or the whole class selecting futures; working forward from decision cards to the resulting futures or backwards from selected futures to appropriate card combinations.

The basic game is run by the Game Director (G.D.). The G.D. may be the teacher (one G.D. for the whole class - probably the best approach with less able classes) or you may use a number of student G.D.'s - one student G.D. to a group of 4 to 6 students. Either way, the best results have been obtained with students working in small groups. Student G.D.'s need some time to familiarise themselves with the game before you start.

A POSSIBLE SCHEDULE OF ACTIVITIES

Pre-game 1.  
(about 30 minutes)

(Important) Following the instructions on the Game Director's Card and the Student's Instruction Card, teacher works through the game.

Pre-game 2.  
(about 15 minutes)

(Optional) Teacher selects four to eight students to be G.D.'s and explains their role to them.

The Basic Game  
(1-2 hours)

Students decide on their "wants" and receive the resulting future. Introduce the game by establishing these points:

1. We are talking about the future, say 50 years from now i.e. towards the end of your lifetime.
2. What will New Zealand be like? That depends on you. How you live your life will have a large part in determining New Zealand's future.
3. In this exercise you make your most important "life decisions". Try to be realistic.
4. You will discover what would happen if everyone made similar decisions.

Divide your class into groups and issue a game set to each group.

The Student's Instruction Cards guide students through the necessary decisions. Game Directors (working from the G.D. Card) will be handing out and collecting the sets of cards. Record sheets are a "must" for this exercise. Model record sheets for the basic game are on pages 10 & 11. Reproduce these, or make up your own. If you prepare your own, take care to ensure that they are compatible with the Student's Instruction Card.



Follow-up 1.  
(1 hour)

Obtain a class average future. Record all R-scores and P-scores from the basic game on the blackboard and calculate an average for each. Consider the resulting future: what is good and bad about it? Does it allow individuals in the class to have different aspirations? Your class can consider this future to be a likely one for New Zealand, since it includes the aspirations of a number of people.

Follow-up 2.  
(1 hour)

Working from the Futures Summary chart, individuals, small groups, or the whole class select (and justify their selection of) one of the 12 futures which they regard as the best future for New Zealand. This could be a discussion followed by a writing lesson. A set of directed questions that could form the basis of this - and the following - lesson is included (see P. 12).

Follow-up 3.  
(1 hour)

Individuals, small groups or the whole class consider how their preferred future should be put into effect. Using the cards, students identify combinations of decisions that permit their preferred future and at the same time they identify decisions (i.e. certain cards) that are not compatible with their selected future. As with follow-up activity 2, some discussion followed by a writing activity is an appropriate lesson structure.

#### OPEN-ENDED FOLLOW-UP ACTIVITIES

Like any other simulation game The New Zealand Futures Game is not an end in itself; in fact it is only a beginning. All our trials of the game suggest that students of all ages and abilities really want to discuss and investigate their results, and are more than ready to "follow-up". So let's assume you have played the game and are looking for some ideas.

##### A. Some immediate follow-up activities

1. Analyse the product card choices of various groups; how often are the various cards chosen in the basic game? Are they selected at different frequencies in the preferred future exercise? Discuss any differences.
2. Consider the changes in laws and social attitudes that may be necessary to implement a particular preferred future.

3. Survey a random selection of adults in the local community with regard to their opinions of some issue arising from the game. A model survey on New Zealand's future energy needs is shown on page 13. Results of surveys like this would be of great interest to the Commission for the Future. Your class could communicate directly with them - P.O. Box 5053, Wellington.
4. Bar graphs of, for example, average R-scores of various groups, e.g. parents, other classes, other adults, etc. Several points could arise for discussion e.g. variations between individuals, groups; reasons for variations; conclusions.
5. What are the consequences for New Zealand of certain value systems? For example, the high material standard of living ethic; the maximum protection of our environment philosophy.
6. Prepare a collage/poster/wall display/ talk to illustrate individual or group choices of future.
7. Make a comparison of individual choice and group choice of future, noting how the first has to be modified to fit in with the second.
8. Discuss implementation of students' aspirations with local planners or politicians.
9. Explore the knowledge outcomes of the game - especially issues such as population growth, age structure, energy supply and demand.

B. Longer term projects

1. Investigate developments by governments, groups and individuals which in the past have brought about changes, then suggest how changes might be developed in the future. e.g. forms of transport communications, industrial processes, agricultural techniques, etc.
2. Investigate the policies of New Zealand political parties as they are now, and policies which could work if our desired future is to be achieved.
3. Investigate other political systems and how they work to achieve the kind of future they wish to achieve for their country, e.g. China, India, etc.
4. Investigate changes which would have to be made in our present way of life if we are to achieve our desired future. Suggest how these changes might be made.
5. Students form political groups (either real or specially invented) and work towards a general election. Each group prepares publicity material (e.g. posters, leaflets) and one member makes an election speech to the class or another group. The audience votes, either for the party which is most effective in its campaign, or by evaluating and scoring along previously agreed lines.

C. Our local future

1. Discuss, and draw up plans in the class/group for your present community as you think it should be in 20-30 years. Consider such things as housing, transport, services, recreation, growth etc.
2. Survey people as to their ideas about the future of the community. Relate their plans to yours - find reasons for variations.
3. Study your regional/city plan - interview the town planner/mayor/councillors. How does your plan fit in with theirs? What changes would you have to make? Who pays for the developments?
4. Along with the above work, consider the items from which you chose to spend the \$70,000. Which ones exist/could be developed/are unsuitable for your planning? Discuss ways and means of providing for those you think suitable.

If several classes are tackling this work a very worthwhile display could be set up of plans, models, drawings etc. Perhaps the local library or council building would collaborate with you.

D. The student's own future

Two possible assignments:

1. Draw up a timetable of the next 30 years of your life. Include such items as appropriate e.g. education and training - jobs - marriage - way of life etc. Then consider key points where you must have certain requirements before that particular future is achieved; e.g. if you plan on being an engineer then you must gain certain qualifications while at school, and then at University. Then put it away for 30 years and see if you have achieved the future you want now!
2. If you were able to rise to a position of power e.g. in politics, industry etc, what field would you choose, and what would you do with the power to make the best future for New Zealand?

E. Assessment and Evaluation

Whatever work is developed from the New Zealand Futures Game there should be evaluation;

1. of the student. Has the student gained greater knowledge and insight into the problems of our developing future and how they might be solved? This evaluation could be by written test, reporting, or by general discussion.
2. by the student. Does the student feel knowledge and insight have increased? Does he feel more prepared for the future? This evaluation may be by written comment/discussion/reporting, and should include comment on the form the work has taken as well as the game itself.
3. by the teacher. Was this a successful approach? Could it have been improved? Were the students involved, etc? Did the game fulfill its objectives of stimulating discussion and work? Are there other activities which were used? Notes on these points should be added to the game materials for the guidance of other users.



Model Record Sheet (Cont'd)

<b>2</b>	MY IDEAL FAMILY SIZE = _____ children	P-score _____
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<b>3</b>	MY DECISION ON IMMIGRATION LEVELS Policy 1 - Anyone may come Policy 2 - Only skilled people Policy 3 - Strictly controlled entry Policy 4 - No-one may come	<table border="1"><tr><td style="height: 20px;"> </td></tr><tr><td style="height: 20px;"> </td></tr><tr><td style="height: 20px;"> </td></tr><tr><td style="height: 20px;"> </td></tr></table>					P-score _____

<b>4</b>	MY POPULATION POLICY We encourage equal employment opportunities for women. Free Family Planning Centres available to everyone. Families with many children pay more tax. How many unexpected offspring? _____	<table border="1"><tr><td style="height: 20px;"> </td></tr><tr><td style="height: 20px;"> </td></tr><tr><td style="height: 20px;"> </td></tr></table>				P-score _____

<b>5</b>	MY FUTURE NEW ZEALAND Total R-score = _____ Total P-score = _____  Future number _____  Summary: Population size _____ Population structure _____ Economic growth _____ Standard of living _____ Environmental quality _____  _____
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Directed questions for Follow-ups 2 and 3

OUR PREFERRED FUTURE

1. Which future is the best future for New Zealand?  
(Use the FUTURES SUMMARY CHART)
2. Write down the summary of your preferred future.
3. Write a paragraph explaining why you believe your preferred future is the best future for New Zealand.  
(Hint - you should explain what your preferred future offers that other futures do not offer.)
4. Use the product cards and the various population cards to find one combination of cards that makes your preferred future possible. Write down the names of the cards you have chosen.
5. Write down a heading: Things That I Can't Have.  
Underneath this heading list all the cards that you chose the first time you used the game that you did not choose in your answer to question 4.
6. How could future New Zealanders make sure that:
  - (a) The cards that you chose in question 4 are decisions made by many New Zealanders in the future?
  - (b) The cards that you listed in question 5 are decisions that are avoided by New Zealanders in the future?

Model Survey Form

NEW ZEALAND'S FUTURE ENERGY NEEDS

Our class is investigating the future of New Zealand. If you have some time, we would like you to complete this form. Your answers will help us understand how New Zealanders think our future energy needs will be met.

Please rank these statements in order. Place a "1" in the box beside your first choice, a "2" in the box beside your second choice, and so on.

A. If we run short of electricity we should:

- build nuclear power stations
- build more hydroelectric schemes (like the Clutha)
- build more thermal power stations (like Huntly)
- put up with regular power cuts
- use existing electricity more efficiently - even if that means raising the price of electricity


B. If imported petrol becomes too expensive for New Zealand to buy all it needs, we should:

- import as much as we can afford, and ration it
- import as much as we can afford and double the price to discourage use
- reduce our imports steadily and convert natural gas to liquid fuels, even if this requires expensive modifications to cars
- reduce our imports steadily and convert wood to liquid fuels, even if this requires modifications to cars and the planting of very large areas in pine trees




THE TECHNICAL BASIS OF THE GAME

*You can only predict things after they've happened.*

*Eugene Ionesco.*

*Prudent men should judge of future events by what has taken place in the past, and by what is taking place in the present.*

*Miguel de Cervantes.*

What follows is a brief description of the technical basis of the New Zealand Futures Game; of its strengths and weaknesses. There are two reasons for including this material. The first is that you may require some of this information if you use the game with senior classes. The second is that the reaction of some students - and teachers - to the game is that it is just a game with no basis in reality. ("Not a very realistic game.", said a student in one of our trial classes!). The inclusion of this material should enable you to better judge the validity of the exercise for yourself.

We should begin by clarifying exactly what the game is, and is not. It is a future-planning educational exercise which is targeted at 4th form students in New Zealand schools. The information content and format of the game have been reduced to the point at which they function with 4th form classes. Inevitably, a number of simplifications have been introduced with which experts in future planning may take umbrage.

Perhaps the most significant of these simplifications is the "freezing" of variables. When students select combinations of cards they determine the size of certain variables. For example, a series of population decisions with a resulting P-score of 5 determines a population growth rate of 1.2% per annum. The game then "freezes" our population growth rate at 1.2% p.a. for 50 years and presents the student with the consequences of this. In practice, population growth rates do not remain constant for periods like 50 years. They may fluctuate about an average rate of 1.2% p.a., but they do not remain constant. If you can live with this sort of simplification, read on.

The second important simplification involves the use of language. The instructions and the contents of the future scenarios have a reading age of 12 years. To obtain this low reading-age, technical terms with a high degree of precision have been replaced by more general terms with a lower degree of precision. Thus throughout the game:

"standard of living" refers to material standard of living

"environment" refers to natural (wilderness-type) environment

"economic growth" refers to changes in per capita G.N.P.

How the futures were constructed

The twelve future scenarios were each written around a number representing the quantity of energy needed to support that future. These energy demand figures were obtained by:

1. estimating the per-capita energy consumption of each future
2. determining the number of people present in each future
3. multiplying these two quantities to obtain the energy demand figure for each future

Each future scenario then considers the economic, social and environmental costs of supplying that quantity of energy.

1. Estimating per-capita energy consumption

Three per-capita energy demand categories were used - low, moderate and high, as follows:

ENERGY DEMAND CATEGORY	FUTURE NUMBER			
<p><u>LOW</u> (R-score 40 or below). The assumed per-capita energy consumption is 90 GJ/year, which is our current level. The resulting material standard of living is, therefore, "Like New Zealand now". Economic growth has been "zero".</p>	1	4	7	10
<p><u>MODERATE</u> (R-score between 41 and 70). The assumed per-capita energy consumption is 200 GJ/year. The resulting material standard of living is "Higher than New Zealand now" (perhaps equivalent to Switzerland now). Economic growth is said to have been "steady".</p>	2	5	8	11
<p><u>HIGH</u> (R-score above 71). The assumed per-capita energy consumption is 320 GJ/year, which is the current level in the U.S.A. The resulting material standard of living is said to be "Like U.S.A. now". Economic growth has been "rapid".</p>	3	6	9	12

2. The number of people in each future (See Fig. 1)

In the game a P-score of 1 represents a 0.4% increase in population per annum, either from migration or from natural increase. The current death rate is around 0.8% p.a., thus:

- P 0 represents 0.8% reduction in population p.a.  
(below replacement level)
- P 1 represents 0.4% reduction in population p.a.  
(below replacement level)
- P 2 represents zero growth in population p.a.
- P 3 represents 0.4% growth p.a.
- P 4 represents 0.8% growth p.a.
- P 5 represents 1.2% growth p.a.
- P 6 represents 1.6% growth p.a.
- P 7 represents 2.0% growth p.a.

Based on 1975 population structure, P 1 = 12,500 additions (numerically) per annum, which is equivalent to one additional child per reproductive couple during their lifetime. Thus each child has a P-score of 1.

Recent New Zealand Department of Statistics projections suggest a likely high limit to our population growth of 1.2% p.a. declining to 0.8% (P 5 declining to P 4) and a likely low growth limit of 0.8% declining to zero (P 4 declining to P 2). Both limits include net migration estimates. These various possibilities have been reduced to 4 population growth categories, as follows:

BELOW REPLACE- MENT LEVEL.	STATS. DEPT. LOW ESTIMATE.	STATS. DEPT. HIGH ESTIMATE.	VERY HIGH POP. GROWTH
(P = 0 or 1)	(P = 2 or 3)	(P = 4 or 5)	(P = 6 and more)
Population of 2-3 million in 2025 with a "geriatric boom".	Population of 3½ million in 2025 with acceptable age structure.	Population of 5-6 million in 2025 with acceptable age structure.	Population of at least 8 million in 2025 with a "pediatric boom".
1	4	7	10
2	5	8	11
3	6	9	12

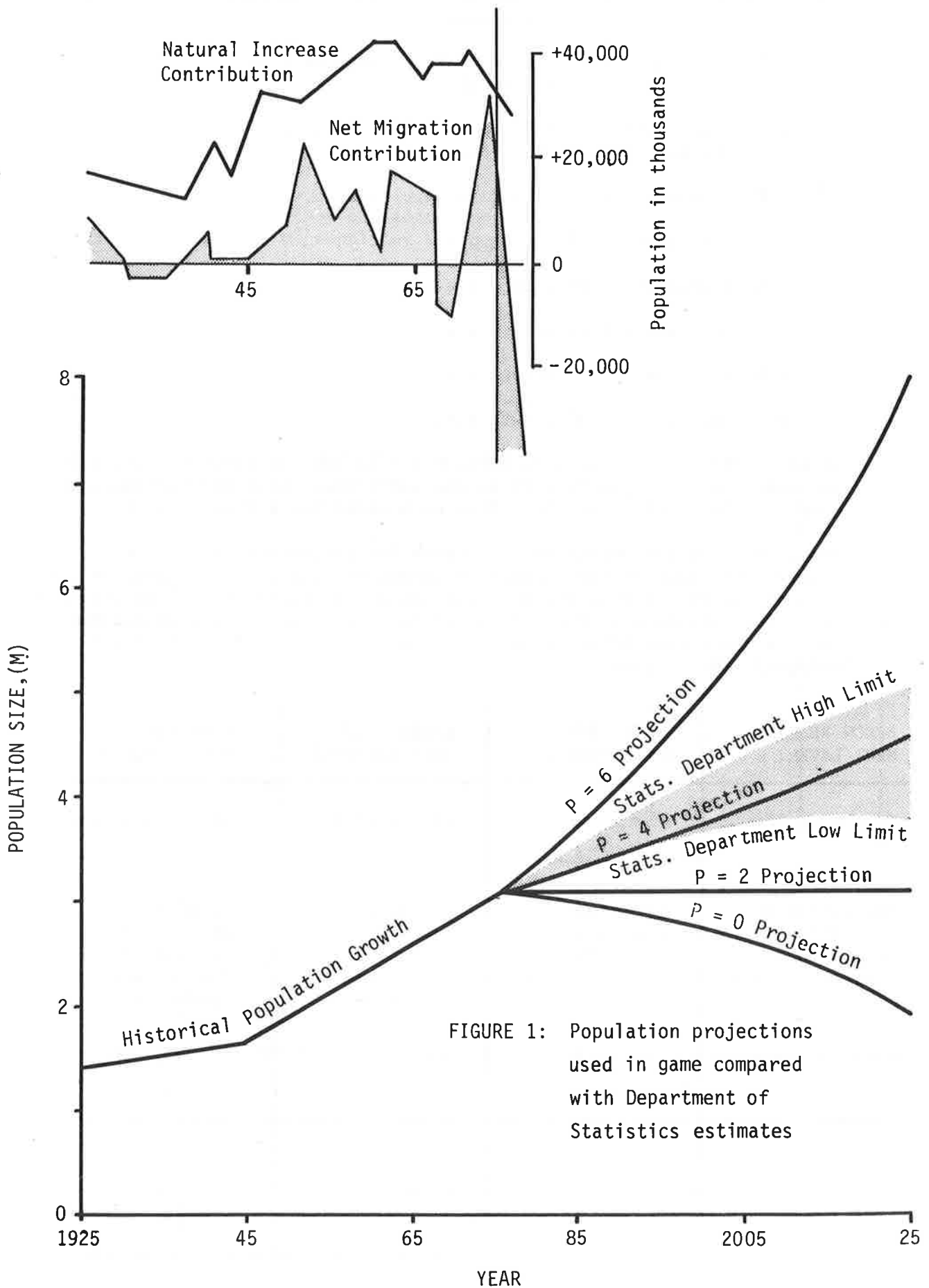


FIGURE 1: Population projections used in game compared with Department of Statistics estimates

3. Energy demand figures

Having obtained estimates of population size and per-capita energy consumption for each future, the energy futures were then calculated. The table below shows the results of these calculations. The units are petajoules (PJ). For comparison, New Zealand's energy consumption in 1975 was 290 PJ.

PER-CAPITA CONSUMPTION (PJ)	POPULATION SIZE (million)			
	2	3.8	5.1	9
90	180	340	450	800
200	400	750	1000	1800
320	650	1220	1600	2880

How might these quantities of energy be supplied? To answer this question it was necessary to consider first the potential for development of various energy resources in New Zealand and likely trends in the availability of imported energy. Three recent publications were essential to this exercise:

Energy Scenarios for New Zealand	Report No. 19. N.Z. Energy Research and Development Committee.
Energy - New Zealand's Future*	M.L. Jansen
Goals and Guidelines, An Energy Strategy for New Zealand	Minister of Energy

From these sources figure 2 was constructed. It illustrates possible trends in the development of our energy resources. There are two conspicuous assumptions. The first is that we are financially able to continue importing large quantities of petroleum (while world stocks last); and the second is that we do not employ nuclear power until all other energy sources have been maximised. Thus Future number 11, which requires 1800PJ annually, would require maximum development of all indigenous energy sources (at considerable environmental cost) and the deployment of 28 nuclear power plants (at considerable financial cost). Future number 7, on the other hand, requires only 450PJ annually. This appears to be well within our potential resources, enabling us to preserve our environment and largely to do without imported energy.

Essentially, that is how the 12 scenarios were constructed.

\* Class sets issued to all schools in 1977.



Good and bad futures

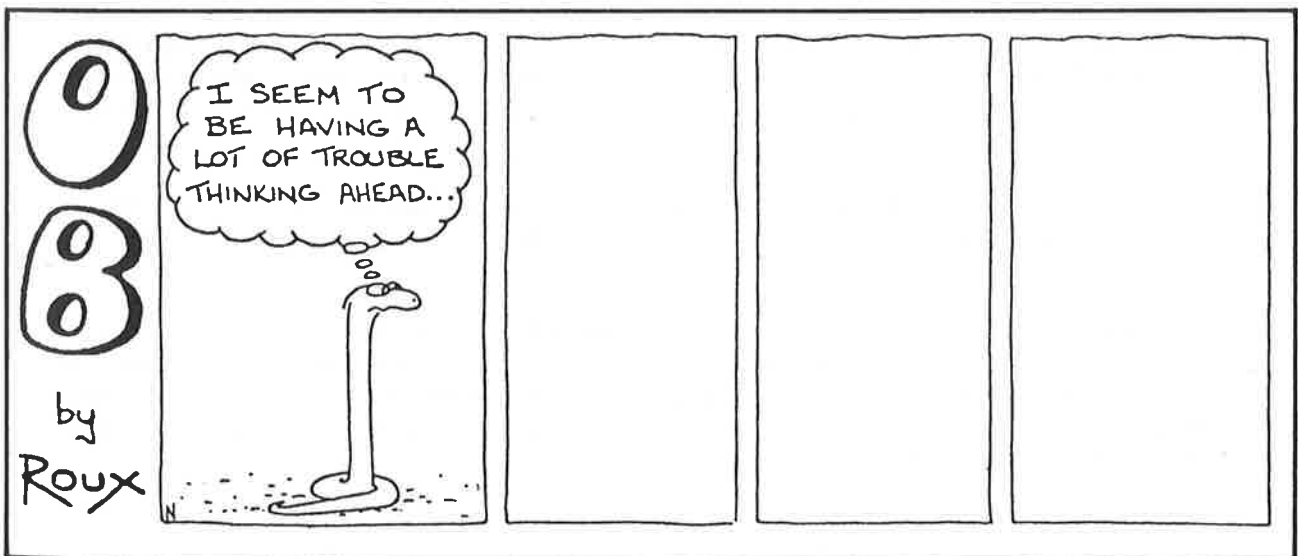
"Which is the best future?" The question is inevitable. My answer has been, "Best for what?" Something of a cop-out, since it is clear that some futures are "better" than others.

In dealing with this question, perhaps the "best" approach is to apply the criterion of sustainability. A sustainable future is one that any given generation of New Zealanders could pass on to the next generation confident that it would continue to function as well as it had in the past. A future is not sustainable if it contains within it trends that will, if they are not controlled, lead to economic, environmental or social chaos.

The most obvious source of unsustainability is population growth (or the lack of it). Futures 1, 2 and 3 have a population growth rate that is below replacement level. Their populations are declining and their age structures bulging with old people. They are not sustainable. Similarly, futures 10, 11 and 12 have excessive population growth. If their populations continued to grow at the same rate for an additional 50 years, they would each have a population size of around 25 million! Cross out futures 10, 11 and 12.

Six futures remain. We should now look closely at Future number 9. It has a high, but probably declining, population growth combined with continuing high economic growth. If both trends continued, it would certainly be an unsustainable future. Could a subsequent generation control both trends? Probably not. Future number 9 is, at best, of doubtful sustainability.

Which is the best of the rest? You and your class can apply the criterion of sustainability and decide for yourselves. I am not going to tell you what I think.



## APPENDIX

### SOME COMMENTS ON THE CARDS

Students will often ask for explanations of various cards or options presented to them by the game. During game sessions you should keep your explanations to a necessary minimum. In follow-up discussion, however, it can be of value to consider in more detail the implications of the various alternatives.

#### The product cards

There are five groups of product cards, with four choices in each group. The groups are: housing, transportation, leisure/personal development, consumer products and environmental/resource conservation. The R-scores represent the resource demand and/or environmental impact of each option. Although the R-scores are subjective, there are definite reasons for each of the given figures. The R-scores of the more significant cards are discussed below.

Large House in the Country has the highest R-score in the pack (R40). It has been given this value because it is intensive in its requirements for three key quantities - land, resources (it is a large house) and transportation. Logically, a person living in the country and working or shopping in town would require a Big Station Wagon to provide transport. The New House in the Suburbs (R25) is somewhat less intensive in its use of land and resources, but the transportation energy required by a society that lives in dormitory suburbs and commutes to work, shops and recreation, is considerable. Self-sufficient Community (R10) is clearly a low energy demand option with a high degree of self-sufficiency. However, it is hard to put this philosophy to work in the middle of town, so again there is a significant transportation energy cost. This particular option also embodies the concept of communal living or sharing of facilities. Household goods that are useful but infrequently used (like washing machine, lawnmower and vacuum cleaner) are shared between a group of families, thus reducing the quantity of material goods that must be provided by a future society. The Small Apartment (R3) is minimal in its use of resources, land and transportation energy. The card states, "Your family can walk or cycle to work, school, shops".

Within the four transportation options there is a similar series ranging from resource intensive (Big Station Wagon) to resource efficient (Family Set of Bicycles).

In the remaining groups of cards, the student's total R-score is affected by the number of cards selected from each group, rather than the individual cards chosen. R-scores are lowest in the environmental/resource protection group, a little higher in the leisure/personal development group and higher still in the consumer products group.

Students tend to show clear individual philosophies in their choice of product cards. Some have high "quantity of life" aspirations. They select high R-score housing and transportation options and show little interest in the personal development or environmental protection cards. Others select cards with a clear understanding of the difference between "wants" and "needs". They prefer personal development (especially) and environmental protection options and they select their housing and transportation cards with care.



I find it fascinating to observe students who have high resource demand philosophies struggling to accommodate their "wants" with the unpalatable aspects of the resulting future. The student must then decide whether to trim their list of "wants" or accept an unpalatable future. A great deal of tension is generated at this stage and this is sometimes resolved by the student rejecting the game entirely. One student in a trial class commented in her review of the game:

"it is unreliable because I totally disagree with the future I ended up with and this contradicted my feelings for the future. I don't think enough time was put into the game by some people."

So much for my efforts!

#### The population score decisions

Essentially, our population future has two variables - our natural rate of increase and our net migration rate. However, our natural rate of increase will change in response to a range of external conditions. The manipulations of these rate-modifying conditions therefore forms a third variable in our population future. Some of the more important rate-modifying conditions are:

- the economic conditions prevailing at any given time
- the extent to which women have access to rewarding employment
- the extent to which reliable family planning practices are known and used
- the extent to which fiscal policies encourage or discourage the production of children (family benefits, tax concessions, etc.)
- the availability of abortion.

Future economic conditions and their likely effect on the natural rate of increase are very difficult to quantify and have been omitted from the game for that reason. Abortion is a crucial factor in future population planning. Prior to the passing of the 1977 Contraception, Sterilisation and Abortion Act, New Zealand had an annual abortion rate of around 30% of the annual rate of natural increase. Subsequently it appears to have declined to around 10%. Despite the clear population significance of abortion, it is open to question whether it should be raised as a classroom topic at this time. Because the various organisations involved in the development of the New Zealand Futures Game were not unanimous that it should be included, it has been left out.

Students are invited to make decisions concerning the remaining three rate-modifying conditions. These are expressed as rate-reducing "policies" that the student must either accept or reject. Rejecting a rate-reducing policy should result in a higher rate of natural increase - in other words, a probability of having more children than expected. The additional children are provided by the unexpected offspring pack.

The immigration alternatives

Historically, immigration has had a significant effect on New Zealand's population growth. Selective criteria have always applied, usually based on characteristics of race, skills possessed or country of origin. A most significant rate-determining factor has usually been the relative economic conditions prevailing in the country of origin and in New Zealand.

The immigration policies in the game vary from "open door" to "closed door". The "open door" option (policy 1) offers assisted entry to anyone, from anywhere. New Zealand has never had an immigration policy as generous as this one, so that its likely population effect is difficult to quantify. It has been given a P-score of 5, which is equivalent to around 60,000 immigrants per year - an estimate that is surely conservative. Policy 2, offering unrestricted entry to persons with appropriate skills, is an approximation of New Zealand's policy during the 1960s.\* This policy resulted in high levels of immigration (peaking at around 30,000 per year) that were subsequently judged to be beyond our society's capacity to assimilate. Policy 3 is an approximation of New Zealand's policy during the later 1970s. Under this policy, permits were required by all but Australian immigrants. Permits were issued only if there was demand for the immigrants' skills in New Zealand and only in numbers considered to be reasonable in terms of assimilation and integration. In the game this policy is judged to have a population effect of around 12,000 net additions annually. Policy 4 is a "closed door" - our net migration rate is zero persons annually. I found this option easy to quantify!

\* New Zealand's immigration policy during the 1960s allowed unrestricted entry to Australian, British and Irish citizens and restricted entry to Western Europeans and Polynesians. "Restricted entry" usually meant entry to persons with skills that New Zealand needed.

New Zealand's population is declining. There are now between two and three million people in New Zealand. Few children have been born during the last 50 years, and there are two million people between the ages of 50 and 90 years. Our society is unbalanced because it contains so many old people.

All members of our society have co-operated to lower economic growth. Because of this we are very independent. We produce almost everything we need ourselves — including all our energy.

Because there are so many old people:

- There are few workers.
- Men and women work until 70 years of age.
- There is very little crime.
- Bowls is the national sport.

Because we have lowered our economic growth:

- Our standard of living is the same as New Zealand in the 1970s.
- There is plenty of energy (New Zealand is an energy exporter).
- Our environment has been protected (including all our remaining native animals and plants).
- Tourism is our major industry.

Because our population is declining:

- There is plenty of food (New Zealand is a food exporter).
- Our society must die out within 50 years.

## **SUMMARY**

### **FUTURE NUMBER 1**

Population size —	low
Population structure —	unbalanced
Economic growth —	zero
Standard of living —	like New Zealand now
Environmental quality —	high

New Zealand's population is declining. There are now between two and three million people in New Zealand. Few children have been born during the last 50 years, and there are two million people between the ages of 50 and 90 years. Our society is unbalanced because it contains so many old people. However, because of our small population we are very independent. We produce almost everything we need ourselves — including all our energy.

Our standard of living has been growing steadily. Generally, we are more interested in earning a high standard of living than preserving our environment.

Because there are so many old people:

- There are few workers.
- Men and women work until 70 years of age.
- There is very little crime.
- Bowls is the national sport.

Because our economy has grown steadily:

- Our standard of living has been rising steadily.
- Our environment has been protected (although many hydro-electric sites have been flooded).
- Tourism is our major industry.

Because our population is declining:

- There is plenty of food (New Zealand is a food exporter).
- Our society must die out within 50 years.

## **SUMMARY**

### **FUTURE NUMBER 2**

Population size —	low
Population structure —	unbalanced
Economic growth —	steady
Standard of living —	higher than New Zealand now
Environmental quality —	high

This future has resulted from two trends. First, our economic growth has been rapid, and second, New Zealand's population is declining. There are now between two and three million people in New Zealand. Few children have been born during the last 50 years, and there are two million people between the ages of 50 and 90 years. Our society is unbalanced because it contains so many old people.

Our society's use of resources and energy have been moderate.

Because there are so many old people:

- There are few workers.
- Men and women work until 70 years of age.
- Our manufacturing industries are highly mechanised.
- There is very little crime.
- Bowls is the national sport.

Because our economic growth has been rapid:

- Our standard of living is high — like the U.S.A. now.
- We have enough energy, although our environment has been modified by schemes to provide energy for our industries.
- We import a wide range of goods and to pay for these we have built a highly productive society.
- Our largest industries cause local pollution problems.
- Few tourists come to New Zealand.

Because our population is declining:

- There is plenty of food (New Zealand is a food exporter).
- Our society must die out within 50 years.

## SUMMARY

### FUTURE NUMBER 3

Population size —	low
Population structure —	unbalanced
Economic growth —	rapid
Standard of living —	high (like U.S.A. now)
Environmental quality —	moderate

This future has resulted from all members of our society co-operating to lower both our economic and population growth. We are *more* interested in preserving our environment and having plenty of leisure time. We are *less* interested in a high standard of living. As a result our standard of living has not grown since the 1970s. We are also very independent. We produce almost everything we need ourselves — including all our energy. The conservation of energy has become one of the most important features of our society.

New Zealand's population has grown slowly. There are now 3.5 million people in New Zealand — about the same number as there were in 1980. We have a balanced population structure with an even proportion of young people, workers and old people.

Because our population has grown slowly:

- There are plenty of good houses and schools.
- There is plenty of food (New Zealand is a food exporter).

Because we have lowered our economic growth:

- Our standard of living is the same as New Zealand in the 1970s.
- We have enough energy without nuclear power.
- We have plenty of leisure time.
- Our environment has been protected (including all our remaining native animals and plants).

## SUMMARY

### FUTURE NUMBER 4

Population size —	moderate
Population structure —	balanced
Economic growth —	zero
Standard of living —	like New Zealand now
Environmental quality —	high

This future has resulted from all members of our society co-operating to lower our population growth. There are now 3.5 million people in New Zealand — about the same number as there were in 1980. We have a balanced population structure with an even proportion of young people, workers and old people.

Our standard of living has been growing steadily. Generally, we are more interested in earning a high standard of living than preserving our environment. We have reduced the growth of our standard of living (a little) so that we can preserve our environment (a little) and have more leisure time.

Because our population has grown slowly:

- There are enough houses and schools.
- There is plenty of food (New Zealand is a food exporter).

Because our economy has grown steadily:

- Our standard of living has been rising steadily.
- We have enough energy, although our environment has been heavily used to provide energy for our industries.
- We have a number of large manufacturing industries.
- Our industries cause local pollution problems.

## **SUMMARY**

### **FUTURE NUMBER 5**

Population size —	moderate
Population structure —	balanced
Economic growth —	steady
Standard of living —	higher than New Zealand now
Environmental quality —	moderate

This future has resulted from two trends. First, our economic growth has been rapid (we are more interested in having a high standard of living and not very interested in preserving our environment). Second, our population has been growing only slowly. There are now 3.5 million people in New Zealand — about the same number as there were in 1980. We have a balanced population structure with an even proportion of young people, workers and old people.

Because our population has grown slowly:

- There are enough houses and schools.
- There is plenty of food (New Zealand is a food exporter).

Because our economic growth has been rapid:

- Our standard of living is high (like the U.S.A. now).
- We have 7 nuclear power plants and more are planned.
- We have a large overseas debt (nuclear power plants cost \$1,200 million each!).
- We have become an industrial society.
- Our environment has been heavily used to provide resources for our industries.
- Our industries cause serious local pollution.

## **SUMMARY**

### **FUTURE NUMBER 6**

Population size —	moderate
Population structure —	balanced
Economic growth —	rapid
Standard of living —	high (like U.S.A. now)
Environmental quality —	low
Nuclear power plants —	7



This future has resulted from all members of our society co-operating to lower economic growth. We are *more* interested in preserving our environment and having plenty of leisure time. We are *less* interested in a high standard of living. We are also reasonably independent. We produce many of the things we need ourselves — including all our energy. The conservation of energy has become one of the most important features of our society.

New Zealand's population has grown steadily (which has frustrated some of our attempts to preserve our environment). There are now between 5 and 6 million people in New Zealand. We have a balanced population structure with an even proportion of young people, workers and old people.

Because our population has grown steadily:

- There are enough houses and schools.
- There is enough food.

Because we have lowered our economic growth:

- Our standard of living is the same as New Zealand in the 1970s.
- We have enough energy without nuclear power.
- We have plenty of leisure time.
- Much of our environment has been protected (including many of our native animals and plants).

## SUMMARY

### FUTURE NUMBER 7

Population size —	high
Population structure —	balanced
Economic growth —	zero
Standard of living —	like New Zealand now
Environmental quality —	high

This is a steady growth future. Both our population and our economy have been growing steadily. Generally, we are more interested in a high standard of living than preserving our environment. We have reduced the growth of our economy (a little) so that we can preserve our environment (a little) and have more leisure time.

New Zealand's population size is now between 5 and 6 million. We have a balanced population structure with an even proportion of young people, workers and old people.

Because our population has grown steadily:

- There are enough houses and schools.
- There is enough food.

Because our economy has grown steadily:

- Our standard of living has been rising steadily.
- We have some leisure time.
- We have enough energy (just) without nuclear power.
- Our environment has been heavily used to provide resources and energy for our industries.
- We have many large industries.
- Our industries cause serious local pollution.

## **SUMMARY**

### **FUTURE NUMBER 8**

Population size —	high
Population structure —	balanced
Economic growth —	steady
Standard of living —	higher than New Zealand now
Environmental quality —	low

This future has resulted from a continuation of the growth patterns of the 1960s. New Zealand's population has grown steadily. There are now between 5 and 6 million people in New Zealand. We have a balanced population structure with an even proportion of young people, workers and old people. At the same time our economic growth has been rapid. We are more interested in a high standard of living and not very interested in preserving our environment or having leisure time.

Because our population has grown steadily:

- There are enough houses and schools.
- There is enough food.

Because our economic growth has been rapid:

- Our standard of living is high (like the U.S.A. now).
- We have very little leisure time.
- We use a great deal of energy. We have 20 nuclear power plants and we must continue to build at least one new one each year.
- We have a large overseas debt (nuclear power plants cost \$1,200 million each!).
- We have become an industrial society.
- Our environment has been heavily used to provide resources and energy for our industries.
- Our industries cause serious pollution.

## **SUMMARY**

### **FUTURE NUMBER 9**

Population size —	high
Population structure —	balanced
Economic growth —	rapid
Standard of living —	high (like U.S.A. now)
Environmental quality —	low
Nuclear power plants —	20+

This future has resulted from two trends. First, all members of our society have co-operated to lower our economic growth (we are more interested in preserving our environment and having plenty of leisure time). Second, our population has been growing very rapidly (there are now more than 9 million people in New Zealand). Our rapid population growth has frustrated all our efforts to protect our environment. It has also created a serious food shortage.

Because our population has grown so rapidly:

- Our population is unbalanced because there are so many children.
- There are not enough schools (many schools work two shifts each day).
- We are very short of houses. Slums have appeared around our biggest cities.
- We have to import food.
- Social services (health, education and welfare) are not as good as they used to be.
- Our environment has been heavily used to provide energy and resources for our very large population.

Because we have lowered our economic growth:

- Our standard of living is the same as New Zealand in the 1970s.
- We have not had to use nuclear power plants yet — although several are planned for the near future.

## **SUMMARY**

### **FUTURE NUMBER 10**

Population size —	very high
Population structure —	unbalanced
Economic growth —	zero
Standard of living —	like New Zealand now
Environmental quality —	moderate

This future has resulted from two trends. First, our economy has been growing steadily. Generally we are more interested in a high standard of living than preserving our environment. We have lowered our economic growth (a little) so that we can preserve our environment (a little) and have more leisure time. Second, our population has been growing very rapidly. This has frustrated all our efforts to protect our environment.

Because our population has grown so rapidly:

- Our population is unbalanced because there are so many children.
- There are not enough schools (many schools work two shifts each day).
- We are very short of houses. Slums have appeared around our biggest cities.
- We have to import food.
- Social services (health, education and welfare) are not as good as they used to be.
- Our environment has been heavily used to provide energy and resources for our very large population.

Because our economy has grown steadily:

- Our standard of living has been rising steadily.
- We have some leisure time.
- We use a great deal of energy. We have 30 nuclear power plants and many more are planned.
- Our environment has been heavily used to provide resources and energy for our industries.
- We have many large industries.
- Our industries cause serious local pollution.

## SUMMARY

### FUTURE NUMBER 11

Population size —	very high
Population structure —	unbalanced
Economic growth —	steady
Standard of living —	higher than New Zealand now
Environmental quality —	very low
Nuclear power plants —	30+

New Zealand has serious social, environmental and financial problems, due to a dangerous combination of very high population growth and very high economic growth. There are now 9 million people in New Zealand (including over two million in Auckland). Our population is unbalanced because there are too many children and not enough schools. There are not enough houses. All the food produced by New Zealand farmers is eaten here; so there is none left to export. Instead, we have to import food. There is no spare timber either; so our only exports are manufactured products.

New Zealand is a highly industrialised society. Many factories work seven days a week and 24 hours a day, causing much pollution. Disposal of radioactive waste from our 70 nuclear power stations is a problem.

New Zealand has a heavy foreign debt due to high levels of importation and government spending on nuclear power plants. With high levels of taxation and unsatisfactory social conditions, there is much social unrest involving strikes and violent demonstrations. Our large police force has become a paramilitary organisation.

Our society is close to collapse.

## **SUMMARY**

### **FUTURE NUMBER 12**

Population size —	very high
Population structure —	unbalanced
Economic growth —	rapid
Standard of living —	high (like U.S.A. now)
Environmental quality —	very low
Nuclear power plants —	70+

# THE NEW ZEALAND FUTURES GAME

## STUDENT'S INSTRUCTION CARD

### 1

#### **PRODUCT SELECTION**

- (a) Choose product cards worth up to \$70,000. You can spend less than \$70,000 if you like, but you cannot spend more.  
Try to put together a package of cards that show the way you would like to spend your life's income.
- (b) Write down your decisions on the student record sheet. Place a tick in the boxes you want and a cross in the boxes you don't want.
- (c) Write down the cost of each item you chose.
- (d) Write down the R-score of each item you chose.

### 2

#### **FAMILY SIZE**

- (a) Decide how many children you would like to have (if any).
- (b) Tell the Game Director and collect the correct number of child cards.
- (c) Write down your decision on your record sheet.

### 3

#### **IMMIGRATION**

- (a) Decide how many immigrants New Zealand should allow in from other countries. Choose one card from the four different immigration policy cards.
- (b) Put your chosen immigration card with your child cards.
- (c) Write down your decision on your record sheet. Place a tick in the box you want and a cross in the other three boxes.

### 4

#### **POPULATION POLICIES**

- (a) Decide which of these population policies you personally support. You can decide to support none of them, one, two or all three.
- (b) Write down your decision on your record sheet. Place a tick in the boxes you wish to support and a cross in all other boxes.
- (c) Tell the Game Director how many crosses you have marked.

### 5

#### **ASSEMBLE YOUR FUTURE**

- (a) Add up your R-score. This is the total of the scores on the product cards you chose.
- (b) Add up your P-score. This is the total score from all your other cards — child cards, immigration card and population policy.
- (c) Write down your P-score and R-score on your record sheet.
- (d) Tell the Game Director your total P-score and your total R-score, and collect your future.
- (e) Write down the summary of your future.