

# GLOBAL EFFECT



MANUAL



MILLENNIUM

DEDICATION

In loving memory of

Kevin Hall  
1968 - 1992

# *GLOBAL EFFECT*

Designed and Conceived by  
Graphics, Intro Design  
Additional Design  
680x0 Versions  
PC Programming  
VGA Graphics  
Additional PC Programming  
Music & Audio Effects  
Amiga Intro  
Inspirational Graphics  
Documentation

Toby Simpson  
Rob Chapman  
Ian Saunter  
Toby Simpson  
Kevin Mullard  
Paul Dobson  
Steve Grand  
Richard Joseph  
Gary Richards  
Martyn Oakley  
Matthew Likierman  
Toby Simpson  
Ian Saunter  
Simon Cooke  
Steve Grand  
Matthew Likierman

Amiga Install Program  
PC Install Program  
Typesetting  
Beta Testing

Dave Winder  
Ian Saunter  
Peter Jacobs  
Jolyon Ralph  
Mike Short  
Simon Cooke  
Matt Holmes

Toby Simpson  
Pat Winstanley  
Paul Wakeford  
David Evnall  
Barney Flint  
Kevin Mullard  
Robert Swan  
Matthew Likierman

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**UK.**

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# *INTRODUCTION*

## **INTRODUCTION**

Perhaps in the not too distant future, governments have advanced beyond those of today. Control of cities and civilizations is handled from central control points.

You are one of these governments' leaders, assigned control of a new or existing world population with instructions to look after and care for it. You have only limited information and abilities in order to achieve this goal. You will have to look carefully at the information you receive from your sensors; your power is limited, and the environment will be your biggest enemy.

Any fully enclosed eco system has to be almost perfectly balanced in order to survive the ages, and yours will be no different. It will be important to deal with environmental as well as economic problems - there will be many situations along your route which hamper this eventual necessity.

Your people will live lives of their own, and they get on with them regardless of whether you decide to interfere or not. If you don't, they may expand beyond their means, and cause huge pollution problems.

Your ability to control people, and issue new commands, depends on two basic factors: how happy they are, and how well maintained the surrounding environment is. Looking after these, as well as dealing with potential acts of war from other parties, forms only part of your undertaking.

Should conflict take place, it could cause irreparable situations, perhaps plunging you into a new ice age, even global warming to levels impossible to survive - so be warned, you may win a conflict in the short run, but the long term effects could be fatal to every living creature and plant on the face of the planet.

## *INTRODUCTION*

As a potential head of state, several options are open to you. You will be able to take command of an existing colony, where previous leaders have failed to succeed, and try to repair the damage they may have caused. There are large numbers of these sorts of planets throughout the universe, and there would be many possible situations to choose from should you desire. Alternatively, you can try a new command of your own, starting on the world of your choice, facing possibly hazardous situations - maybe starting on a world very short of fossil fuel for example. You will have to fight against these odds, and other pitfalls, in order to build a new thriving environment and civilization. There may be many disasters along the way, from natural ones to vast man made ones - and you will have to deal with these as they occur.



# STARTING THE GAME

## COMMODORE AMIGA VERSION

### Running from floppy disk

Switch on your Amiga, and place the Boot disk (Global Disk 1) in the drive. The game will autoboot.

### Installing & running from hard disk

After booting your **Workbench** disk, insert **Global Disk 1** into any disk drive. Double click on the Icon that appears for this disk, and then double click on the **HD\_Install** icon to enter the installation program. This program will ask you on which partition you want to install Global Effect on. **Make sure that there are 2 Megabytes of free disk space left on the partition you have chosen.**

To run the game thereafter, simply double click on the '**Global Effect**' icon.

### Setup options

When you start Global Effect, you will first have to select which language and video display you wish to run under.

You will be able to choose from PAL, NTSC or ECS-PAL options. If you live in a country where the video system is NTSC, such as America, select this. If you are living in Europe, you have two options; either PAL, or ECS-PAL. If you have an Amiga A3000, or A500+, or have bought the ECS (Enhanced Chip Set), and have a suitable monitor, you will be able to use Global Effect so that it fills the entire screen. If you are in doubt, select the ECS-PAL option and press on the planet gadget. If the introduction sequence that will follow flickers wildly, or the screen display is unstable, then reboot and try again using the PAL option. Once you have selected the language, press on the planet in order to start the introduction sequence.



# *STARTING THE GAME*

## **IBM PC COMPATIBLES VERSION**

### **Running Global Effect from floppy disk**

Start the PC, insert the Boot Disk, and type **'global'** from the prompt. If you normally run DOS off your hard disk, you will need to select the floppy drive by typing A: or B: depending on which drive the boot disk is in.

### **Installing and running from hard drive**

From the dos prompt, select the drive in which you have placed the Global Effect Boot disk. Then, type **'install'** to load the hard disk installation program. This will ask you where on your system you wish to have the program installed, with C:\GLOBAL as the default directory.

The game will load providing you with three basic choices, first you will be asked which language you wish to use, once you have selected this, you then choose one of four sound options: Silent, PC beeper sound, AdLib or Roland cards. Having made this choice, the introduction sequence will load and run.

## **THE INTRO SEQUENCE**

Global Effect will play you an introduction sequence, ending on the title screen . If you leave the computer, it will, eventually, re-start this sequence and repeat it forever, until you either press a key, or click on a mouse button. You will be prompted when the introduction is finished to click or press to continue.

The sequence will play with an accompanying tune and effects, and varies on the different formats.

## *STARTING THE GAME*

### **SELECTING YOUR SCENARIO**

After you have continued from the Introduction Sequence you will be able to select your chosen scenario. There are four basic choices, these are 'Create a World', 'Save A World', 'Rule a World', or 'Disk Options'

### **CREATE A WORLD**

This is the most customizable option. You will be playing on a blank world, and will have to start from scratch.

You can decide initially how many players you wish to be involved, either no others at all, a computer player, or finally another human player, controlled on another machine running Global Effect via the serial port.



## STARTING THE GAME

### Single player game

If you select single player game, your game will be a discovery of the environment, and the various effects of 'human life' on the planet. The challenge is to build whole civilizations whilst still maintaining a good environmental balance. If this is your strategy, using conflictual weapons will destroy only you and the environment you created.



### Two player game

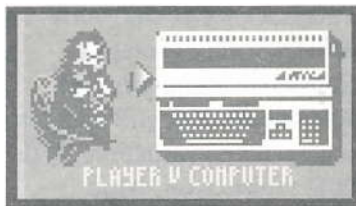
If you selected two players, you will get a requester, from which you will be able to decide on the speed of connection, and the type of connection you require, and then attempt to establish a link. It is recommended that you use a local link (using a null modem cable, see appendix for further details) rather than modems over the telephone network, for reliability reasons. Due to the nature of Global Effect, a vast amount of data has to be sent between the two systems, and, should the link go wrong, it is highly likely that the program will become confused, or, at worst, might fail altogether.



## STARTING THE GAME

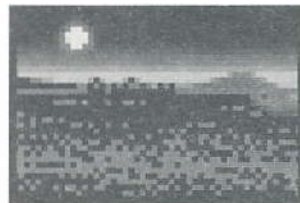
### Player Versus Computer Game

If you chose the computer player, you will be able to decide how it will play its game. You can set up how fast it works, its economic ambition, and its military aggression level. It is recommended you try a low setting on all three of these initially, as the computer player is quite good at this game!



### GREEN FIELD

Green field is a game world that you set up yourself. A requester will appear, on which you set your own parameters for the game. When you have finished, click on 'Accept' and a landscape corresponding to your chosen parameters will be generated.

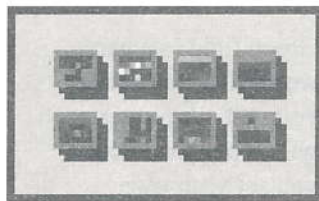


Once you have selected the player options, you will have to decide whether you will be playing either a totally customized world, or one of the eight supplied environmental situations (Green Field or Scenarios respectively). If you select scenarios, you will be able to choose one of eight set scenarios. These options are described hereafter.

## *STARTING THE GAME*

### SCENARIOS

There are eight pre-designed scenarios, there to test your ability to solve a wide variety of environmental problems. Each has its own particularities. You will find that you need to employ different strategies for each one in order to redress the balance of the earth, and restore the environment.



### Unstable World

This is a very young world. Its surface is very unstable. Constant earthquakes and volcanic activity will hamper successful construction. With little forest cover, large mountain ranges and desert tracts, this a hostile environment in which to settle. Choose your power resources especially carefully, and consider the possible outcome of building cities in unstable areas.



## *STARTING THE GAME*

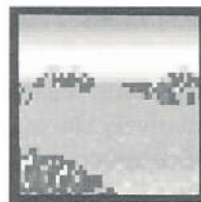
### **Frozen World**

Extremely cold, this world contains few large deserts. Huge polar caps cover large amounts of the northern and southern hemispheres. Most forests consist of coniferous trees, so there are very few areas of rain forest. Continued expansion of the ice caps will present a threat to some cities, and retreating ice flows may leave new, inhabitable areas behind them. Seismic activity is generally low.



### **Archipelagos**

This warm, watery world is made up of large numbers of small islands. Whilst the environment is currently well-balanced, it is also very difficult to establish a large power base here. Cities, power, and waste distribution systems will be limited in scale. The complex island systems also make navigation at sea difficult.



## *STARTING THE GAME*

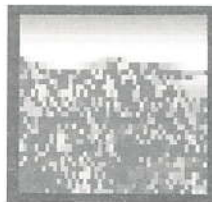
### **Barren world**

This world is old, barren, and hostile. Global temperature is high, with seismic activity relatively stable. Huge expanses of desert cover the world, and trees and shrubbery are scarce. It will be difficult to build cities here, whilst maintaining the environmental balance, though considerable reserves of fossil fuel and uranium may be found.



### **Pangea**

Much of this planet's surface is taken up by one very large land mass, and there is little open sea. Lack of water in inland regions may make it difficult to establish cities. Seismic activity is very prevalent here, as continental drift gradually prizes the large land mass apart. Global temperature is high, and extensive forestation covers the continent.

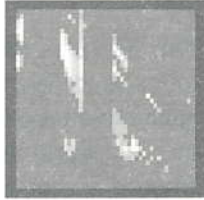




## *STARTING THE GAME*

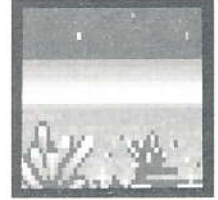
### **Forested World**

Heavy forestation on this young world means that large areas of trees will have to be cleared before effective city building can begin. This could result in unpredictable environmental effects. Seismic activity is still prevalent, so earthquakes are very common here. Careful study of seismic data will be necessary before stable cities can be built. Global temperature is high.



### **Mineral Rich**

A history of massive seismic activity in this worlds' early years has resulted in many rare minerals being present near to the surface, especially uranium, in large amounts. Much of the planet is mountainous or desert and this has prevented the unchecked growth of forests. Average temperatures are fairly high.

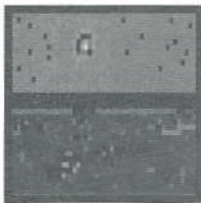


## STARTING THE GAME

### Fossil Fuel

This is a fairly young world. Much of its surface is still covered in forests, though there is plentiful grassland available for construction sites. Its main character is the abundance of rich fuel sources, both coal and oil.

These features make this world appear relatively easy to survive and prosper on. Seismic activity, however, will present a constant threat to large cities.



### SAVE A WORLD

This provides you with four scenarios whereby your eventual goal is to save the world in a set amount of time given a set amount of power. Your scenario will be explained to you, and you can either select the "Accept" or "Cancel" button accordingly. If you accept it, then the scenario will load and run. Your four possible settings are:



## *STARTING THE GAME*

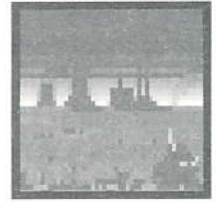
### **Post Nuclear**

The fallout from a massive nuclear conflagration has plunged the world into a post-nuclear winter. Few people have survived. Forests die, large areas of the planet are now contaminated, and the polar caps are expanding towards the equator. You must revive the natural environment to reverse the damage and allow civilization to thrive once more.



### **Post industrial**

Pollution has almost destroyed the world. High levels of CO<sub>2</sub>, and massive ozone depletion attest to the environmental crisis. Over-exploitation has exhausted many of the world's natural resources. Without a major change in environmental policies the world will die. You must build a new world order, based on clean, green and energy-efficient decisions, which will, in time, re-establish environmental equilibrium.



## *STARTING THE GAME*

### **Global Warming**

Heavy industry and the continual use of fossil fuels have resulted in an accelerated rise of global temperatures. This in turn has caused the polar caps to retreat, deserts to advance and sea levels to rise. Civilization is threatened and, without your decisive action to reverse the process, further global warming will rapidly turn this world into a dead planet.



### **Spent world**

Centuries of exploitation through farming and mining have exhausted the world's natural resources. Careful organization and management of what few resources remain is now needed in order to maintain the existing civilization. Failure will see the end of life on this world - total extinction of the human race.



## *STARTING THE GAME*

### **RULE THE WORLD**

You will have two possible scenarios from this option, either a military or economic opponent - and with limited resources and time, the other occupier of the world will have to be destroyed and the environment repaired. Your two possible scenarios are:



### **Industrial**

A rival controller is present on this world. He will uncaringly develop heavy industry in order to achieve economic dominance, but will tend to do so at the expense of the natural balance.

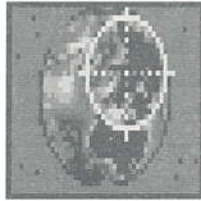
You will need to contain his expansion by any available means, repair the environmental damage caused by his greed, and construct a new, cleaner world.



## *STARTING THE GAME*

### **Military Force**

Your opponent is an ambitious controller whose answer to most problems is war. He will stop at nothing to achieve total dominance of the planet. You will have to defend yourself, and almost certainly engage in military combat in order to eliminate his threat. You will also have to guard your cities carefully from attack, whilst ensuring you have sufficient resources in reserve with which to rectify the environmental damage which may result from conflict.



## *PLAYING THE GAME*

### **PLAYING THE GAME**

Once you have selected all your playing options, you will enter the game display.

Global Effect is a vast real time environmental simulation. A large number of the worlds' workings, such as deserts, coasts, trees and polar caps, for example, are handled by the machine. This world consists of over 60,000 separate locations. When your selected choice of scenario has been loaded, you will see only a small amount of that map from above.

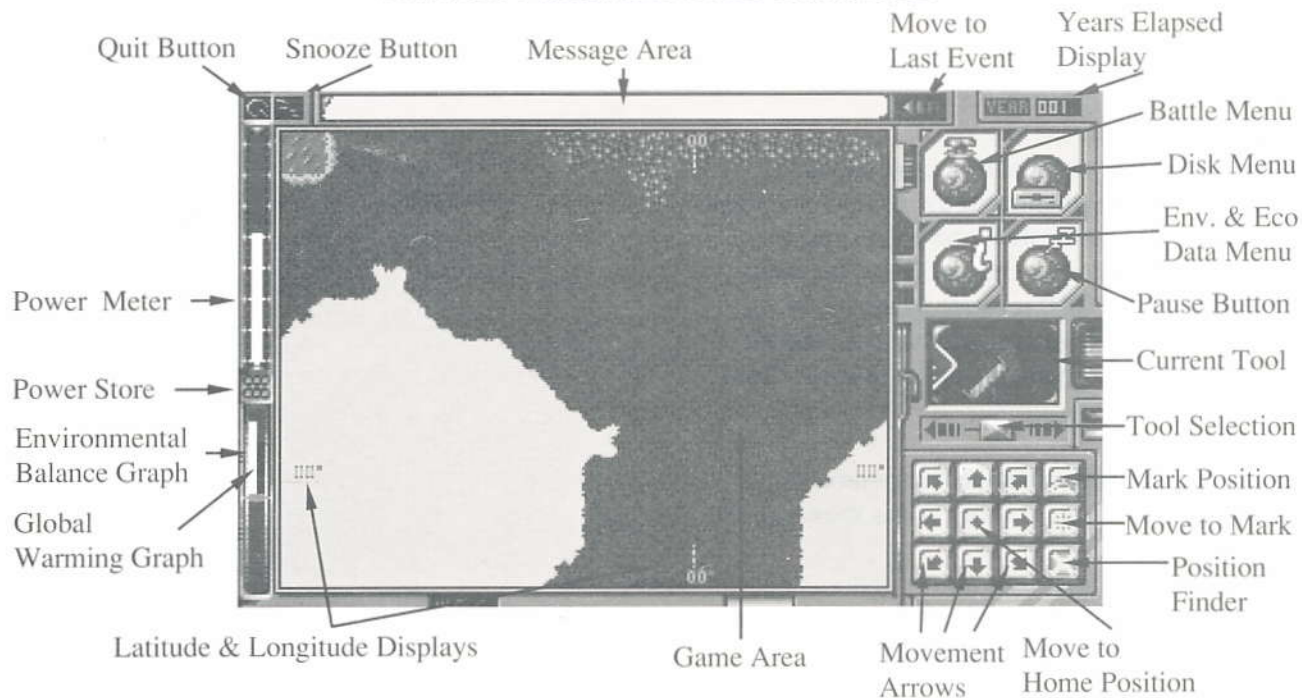
The game display is called the 'Governmental Console', or GovCon for short, and is shown on the next page.

It consists of various types of buttons, gadgets, and displays, which are explained hereafter.



# PLAYING THE GAME

## THE GOVERNMENTAL CONSOLE



# PLAYING THE GAME

## GOVCON FUNCTIONS DESCRIPTION

### Game Area

This is the section of the world map that you are currently viewing and working on.

### Environmental Balance Graph

This graph is a measure of how nice you are being to the environment around you. It starts as slightly above balanced. Your actions will affect whether this goes up or down. If this goes too far down, you should consider taking drastic measures to rectify what has happened. If it is your fault, then you will have had warnings, but it could be the other player who is at fault!

### Global Warming Graph

This displays the current trend in global warming or cooling. If it is above the line, global temperature is rising; if it is below the line, then global temperature is going down.

### Latitude and Longitude Displays

These are your present coordinates on the world map.

### Power Store

This displays how many full 'Power Meters' you have, since the power meter can often go over the top of the scale.

### Power Meter

This meter displays your game power. Almost everything that you do involves spending game power. To start with you have limited amounts of this, and you should choose your initial actions very carefully indeed. Your power either goes up, or down, depending on what is happening in the game. Performing actions, such as constructing cities, costs you power, as does bad environmental management. You will gain power from both your economic rating, and your environmental rating. Your economic rating is calculated from a number of values, including which minerals you have found, how well your cities are looked after, how big your cities are, how well your power distribution is working and so on. Environmental rating is worked out from how well balanced the eco system is, and what the states of various pollution factors are.

## *PLAYING THE GAME*

### **Quit Button**

Clicking on this exits from the game, after a confirmation requester.

### **Snooze Button**

If you own an Amiga you will be able to pause the game and return to the workbench screen if you wish to perform actions, such as formatting a disk to save your game on. Beware, however, not to use any applications that require the serial port while the game is paused, as they will not work, and risk crashing the machine.

This function cannot be implemented on the IBM-PC version of the program, where this button will simply pause the game, without returning you to the system.

### **Message Area**

This is where the game will display all messages to the user.

### **Move To Last Event**

Clicking here will transport you, if you have enough power, to the last major environmental event.

### **Years Elapsed Display**

The number of game years you have been playing for is displayed here.

### **Battle Menu**

Clicking on this will bring up the battle functions. The battle system is discussed later on in the manual.

### **Disk Menu**

Clicking here will bring up the disk menu, where you are able to load and save games.

### **Pause button**

For when you want a cup of coffee!

### **Environmental & Economic Data Menu**

Clicking here will bring up the requester for environmental and economic maps. These are explained individually in the next section of the manual.

### **Current Tool**

This displays the currently selected tool, or the battle tool if you are performing battle functions.

## *PLAYING THE GAME*

See the section on **construction tools** for details of each of the tools available to you.

### **Tool Selection**

By clicking to the left or right of the small drag knob you can change tools. There are thirty of them in all, and they are arranged as a continuous strip, which you can move along to the left or right. They wrap round at the ends so it looks like the strip goes on forever.

### **Mark Position**

Clicking on this will store in memory your current position, to be recalled by:

### **Move To Mark**

Moves you to the last marked position.

### **Position Finder**

This allows you to set the coordinates of the place on the Game Area that you wish to go to. You do this on the menu that appears. It also allows you to go to your 'Active Units' (See the Battle System for details on active units).

### **Move To Home Position**

This will move you to your 'home' position, the place where you started from in the game.

### **Movement Arrows**

These scroll you in the appropriate directions for whichever button you press.

### **Shortcuts**

There are several built in 'shortcuts':

Moving out off the screen with the mouse, and clicking with the left mouse button at the same time, will scroll the map in the appropriate direction. (the ESC key on the Amiga, or the DEL key on the PC, will toggle the need to press the mouse button to move in this way).

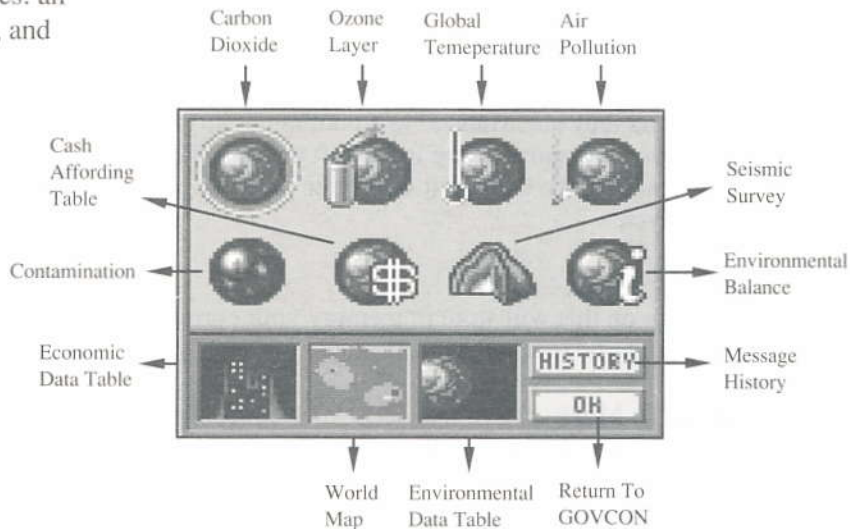
Clicking with the left mouse button on any constructions **with the right mouse button held down** will, power permitting, destroy that block.

Additionally, on the IBM-PC Compatibles version, you can press the 'Left Alt' button on the keyboard to turn off the sound.

## ENVIRONMENTAL & ECONOMIC DATA

These are your sources of information as to the state of the planet, and the effects that you have had on it. There are seven maps, and three other data tables: an environmental balance graph, a seismic survey, and an economic data table.

The requester can be seen opposite, with descriptions of each function following that.





## *ENVIRONMENTAL & ECONOMIC DATA*

### **Carbon Dioxide**

Cheap to look at, and shows the current global coverage of Carbon Dioxide. Darker areas are where the level is lower, the lighter areas indicate a buildup of carbon dioxide. Trees absorb certain amounts of CO<sub>2</sub>, and lots of the fossil fuel burners (especially coal) produce it. Look out for sudden appearances of brighter areas, and be ready to combat the cause. Trees convert CO<sub>2</sub> into oxygen, essential for human life to survive.



### **Ozone layer**

This shows your global coverage of Ozone, a layer of a special kind of Oxygen which sits high up in the atmosphere and filters out the harmful ultra-violet rays from the sun. Holes in this layer, which tend to appear near the poles, but also over heavy industry, may cause danger to your civilization and will reduce your economic standing.



## ENVIRONMENTAL & ECONOMIC DATA

### Temperature

This shows you the current temperature of the world. You can see "hotspots" here, and watch temperatures rise and fall. Most of the events that occur on your world will be affected by or will affect the data on this map in some way. Keep a close eye on sudden rises and falls here, as the effects can be catastrophic.



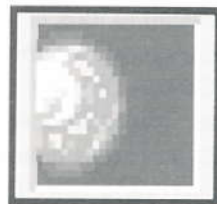
### Air Pollution

From this option, an accurate assessment as to the current levels of air pollution can be obtained. Regular checking of this will be required in order to see where your major pollution offenders are, so that you can take some action. It will also give you a fair idea of how the other player is treating the environment.



### Environmental Data Table

This button will bring up a table of environmental data about the state of the planet. An example of this table is displayed below.



The data displayed gives a general outlook on how the environment of your planet is progressing. Beware, however: the ratings in this table are an average of all areas of the game world. You should not disregard the rest of the data graphs, which will show you to what levels, and in which localized areas, any environmental problems are occurring.

CARBON DIOXIDE: NORMAL	OZONE: NORMAL
TEMPERATURE: NORMAL	CONTAMINATION: NORMAL
AIR POLLUTION: NORMAL	ENVIR. RATING: NORMAL

OK



## *ENVIRONMENTAL & ECONOMIC DATA*

### **Contamination**

Contamination is caused by severe over-pollution, or combat of some kind. This map shows you where the major sources of contamination are. If you see anything at all on this map you will need to act fast, as contamination affects the eco-balance much more rapidly than anything else. Nuclear contamination, for example, may result in trees and your people dying quickly.



### **Cash Affording Table**

By looking at this table you will be able to see which of the many items that you can choose from to build you can actually afford. There are several pages of the most important items. There are 'next' and 'previous' page buttons that allow you to cycle either forwards or backwards through this table.

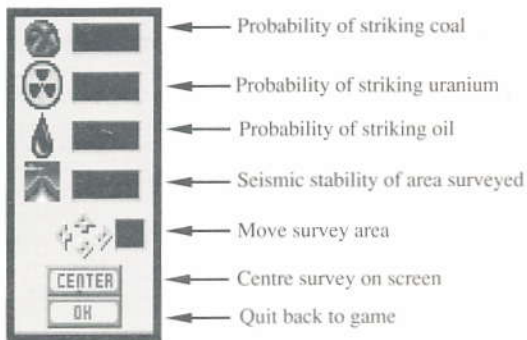


Each item listed has some small triangles next to it, forming a bar. The longer the bar, the more it costs. The solid green area shows how much power you have: everything within this area that is entirely covered in green, you can afford.

# ENVIRONMENTAL & ECONOMIC DATA

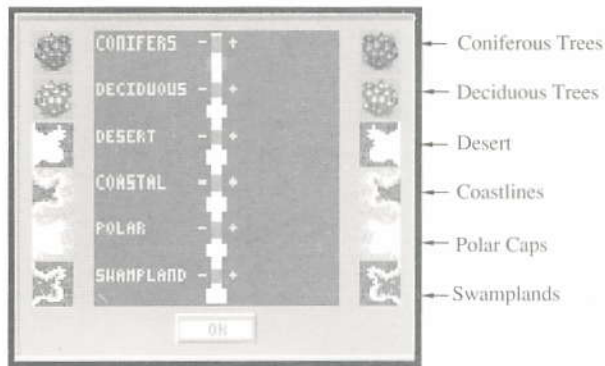
## Seismic Survey

With this, you can take a seismic survey of part of your visual screen area. It then shows you, as a column of percentages, the likelihood of striking coal, oil and uranium, and also the seismic stability of this area of land. You can take multiple readings in any area to get the percentages as accurate as possible and take an average. Pressing 'Center' will center the survey on the screen. Seismic surveys are quite an expensive option to use.



## Balance Graph

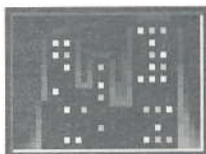
This shows you how well balanced the different parts of your eco-system are. It shows at a glance, the growth or reduction of trees, deserts, swamps, coastlines and polar caps. using this function is free. Too much change in either direction for any of the graphs is something worth paying attention to, as it reflects an imbalance of the environment in one way or another.



# ENVIRONMENTAL & ECONOMIC DATA

## Economic Data Table

This table gives you a variety of types of information about your world, its inhabitants, and the environment around it. This data is used to calculate your Economic Rating, which is one of the factors that increase your power. The information given is as follows:



FARMS:0YA	SEWERAGE:0YA
RECYCLING:0YA	WATER PURE:0YA
COAL:00	URANIUM:00
OIL:00	PLUTONIUM:00
CITIES:00000	POWERED:000Z
CURRENT POWER:00465	EC.RATING:000
POPULATION:~0YA~ (APPROXIMATE)	
YEARS LEFT:10F	ELAPSED:003
INVEST    OK	

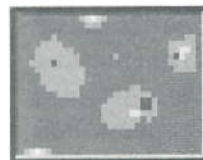
- ← Services cover of your city
- ← Power sources struck
- ← Data on you cities
- ← Current Power/Economic rating
- ← Population of your world
- ← Game time left/elapased

## Investing in Technology

Investing in technology is a way of improving the efficiency of natural power sources. It is quite expensive, but, in the long run, can be very worthwhile when negotiating an environment friendly scenario. By clicking on this button, you will slightly increase the number of city blocks that wind or solar powered power stations can provide energy for.

## World Map

This shows the entire world map on one screen. You get one free usage of this map. On the map there is a crosshair that shows you where you are at the moment, and you can select a new position simply by clicking on it, and so long as you can afford to go you will.



# CONSTRUCTION TOOLS

## Summary of Data maps and Graphs

All of the coverage maps, that is, CO<sub>2</sub>, Ozone, Temperature, Pollution and Contamination, have an outline map overlaid on them so that you can properly see where the source of anything interesting is, and, like the world map, you can click anywhere on the map and jump straight to it, power permitting.

Carbon Dioxide	<b>Average Cost</b>
Ozone	<b>Average Cost</b>
Temperature	<b>Average Cost</b>
Air Pollution	<b>Average Cost</b>
Eco-Balance	<b>Free</b>
Seismic Survey	<b>Expensive</b>
Contamination	<b>Average Cost</b>
Cash Affording	<b>Free</b>
Economic Info	<b>Free</b>
World Map	<b>Expensive</b>

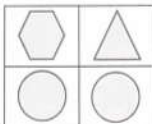
When you have finished with this information menu, select the Cancel button.

## CONSTRUCTION TOOLS

Each tool is listed, along with its function, on the following pages. You will notice that each tool has its icon at the top of each page, and, on the same page, the box of four figures needed for the protection scheme at the start of the game.

Also, on each page, is a figure showing how each block interlinks with other types of block. If you ever have a problem, here is the place to find out why your constructions don't do what you expect!

You can program any of the tools into function keys by selecting that tool, and then holding down shift and pressing the appropriate function key. You can then jump to any of these by pressing the function key that it was programmed into. Your function key definitions will be saved when you store your game on disk.



## CONSTRUCTION TOOLS



### CITY BLOCK

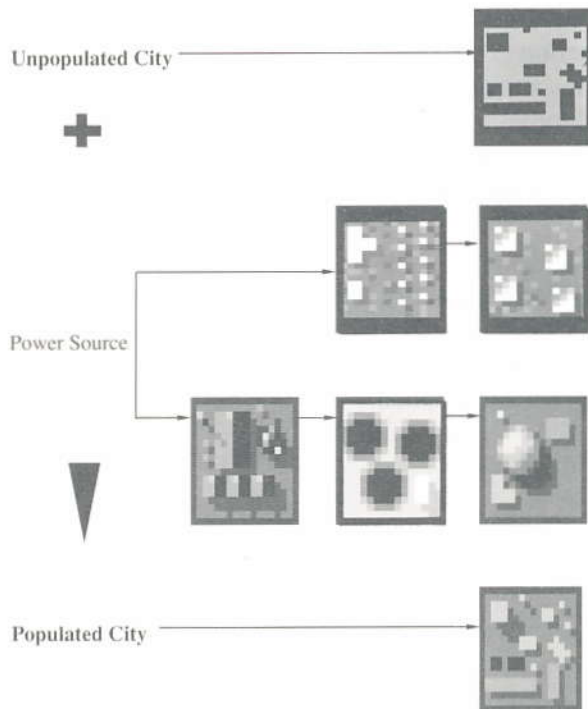
#### Function

A city block is the basic building block of any civilization. It is within these that your population grows. Cities are fairly cheap, and only require a power source to become populated.

Powered (and therefore populated) cities will be lit up, and will vary in formation. Unpowered cities will be blacked out.

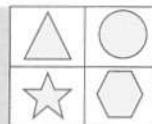
#### Hints

Cities, once powered, will expand on their own, following the evolution of their population. However, once cities grow to a certain size, they will require a certain number of services to keep the citizens 'happy'. As cities expand, the population of each block will therefore depend on these services; for example, no large city can survive without an adequate supply of food...





## CONSTRUCTION TOOLS



### FARM

#### Function

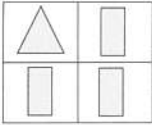
Farms, one of the services available to you, provide food for your cities. They are stand-alone units, not requiring any additional 'connections'. Each farm will provide enough food for a fair-sized city.

#### Hints

People will generally find a certain amount of food for themselves, especially in small cities, and lack of food will only really become a problem if very large areas are not supplied.

Farm





## CONSTRUCTION TOOLS



### SEWAGE FARM

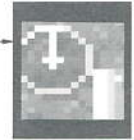
#### Function

Sewage farms are needed near large cities to dispose of human waste. They must be piped to the sea, where sewage that has been processed is deemed to be safe and clean.

#### Hints

As with the other services, it is not necessary to have a sewage farms for very small cities, but will be required for the larger ones.

Sewage Farm



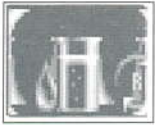
REQUIRES



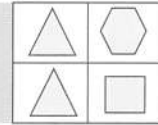
Pipeline (to sea)







## CONSTRUCTION TOOLS



### WATER PURIFICATION PLANT

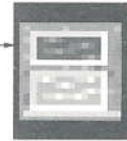
#### Function

This service provides you with a supply of clean drinking water for your people. It must be fed by a pipe from a source of water, either sea or lake, but not the output of a sewage processing plant!

#### Hints

Pipelines can be as close as you like to other pipelines, as long as they do not either touch or cross.

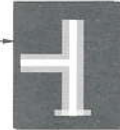
Water Purification Plant

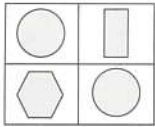


REQUIRES



Pipeline (from water source)





## *CONSTRUCTION TOOLS*



### RECYCLING PLANT

#### **Function**

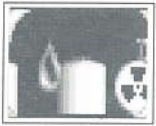
Recycling plants allow you to recycle a considerable amount of the waste produced within your cities, and to re-use resources that would otherwise be lost. They have a considerable effect on the pollution in your cities. Recycling plants are 'stand alone', and do not require connection to other manmade constructions.

#### **Hints**

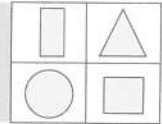
Without adequate provision for recycling, wasteland will start appearing around your large cities, where people will be using land for dumping purposes.

Recycling Plant





## CONSTRUCTION TOOLS



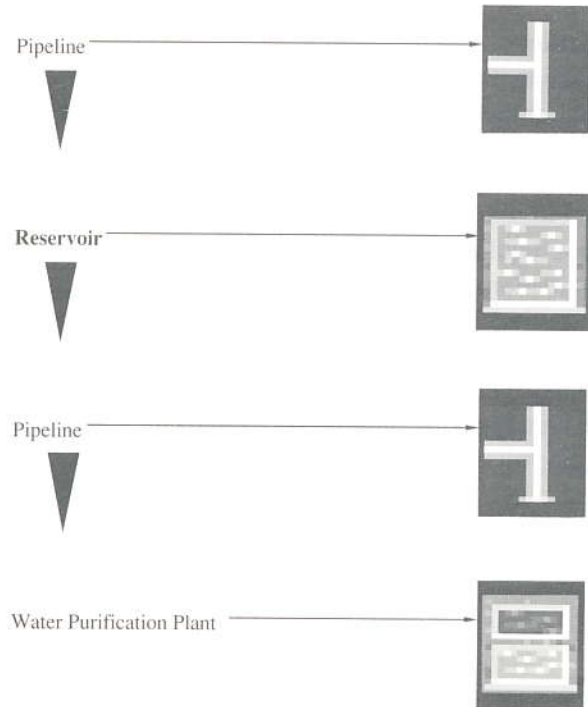
### RESERVOIR

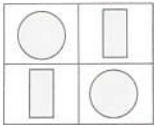
#### Function

This is a water store, that will buffer the water supply to your cities. The reservoir can be placed anywhere in the piping between a water source and water purification plant. Reservoirs can also be used in the pipelines between nuclear power stations and their water source.

#### Hints

Water reservoirs are important since, if a city does not have an adequate water supply, its population cannot survive.





# CONSTRUCTION TOOLS



## CHOP TREES

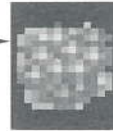
### Function

This will cut down trees, both coniferous and deciduous.

### Hints

Trees have a very positive effect on the environment. It would be a mistake to cut down any more than you need to!

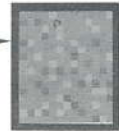
Coniferous & Deciduous Trees

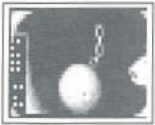


CHOP TREES

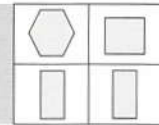


Grassland





## CONSTRUCTION TOOLS



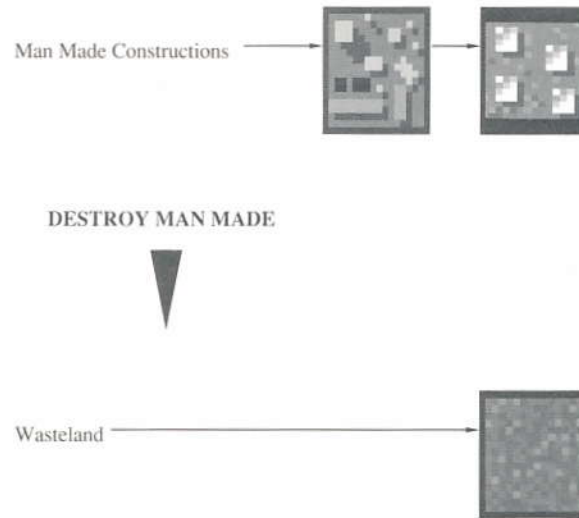
### DESTROY MAN MADE

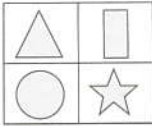
#### Function

This tool will destroy any man made object in your cities. The destroyed buildings will get turned into wasteland. It should only be used when necessary, as destroying constructions is quite expensive, and leaves land that has to be converted to be usable again.

#### Hints

Destroy man made is generally used when you need to make space for new constructions, for example, building a pipeline through already established cities to connect up a nuclear power plant.





## CONSTRUCTION TOOLS



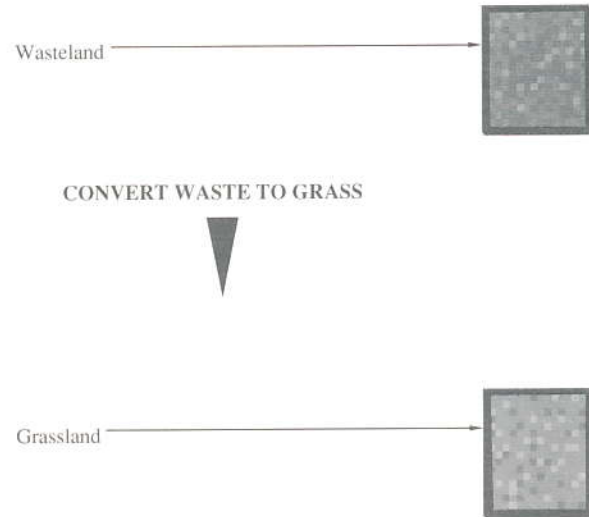
### CONVERT WASTE TO GRASS

#### Function

Converting wasteland to grass will allow you to build once again on that land. It is an extremely expensive option, but will have a small beneficial effect on the environment.

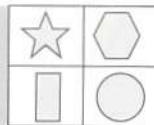
#### Hints

Because of the expense of converting wasteland to grassland, ideally, you should attempt not to have any wasteland in the first place. Wasteland can only have pipes and cables built on it, whereas grassland is open to any form of development.





## CONSTRUCTION TOOLS



### PLANT CONIFEROUS

#### Function

Coniferous trees are the cheapest trees to plant, and survive better than deciduous trees near the polar caps. They produce oxygen, and reduce pollution.

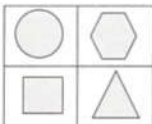
#### Hints

Planting trees around your cities towards the beginning of the game is the cheapest way of boxing cities in, to prevent unwanted and excessive expansion. Beware of relying too much on trees to contain cities, since trees do die eventually...

Coniferous Trees







## *CONSTRUCTION TOOLS*



### PLANT DECIDUOUS

#### **Function**

These trees are best planted near the tropics of your world, where the climate is best suited to them. They are a little more expensive than coniferous trees.

#### **Hints**

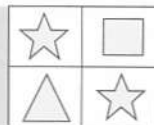
These can also be used as city borders, but are more prone to dying than coniferous trees. Deciduous trees will absorb more carbon dioxide, and produce more oxygen, than coniferous ones.

Deciduous Trees





## CONSTRUCTION TOOLS



### CITY LIMIT

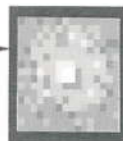
#### Function

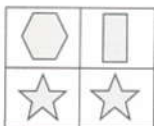
City limits provide an effective border to your cities, preventing them from expanding faster than you would wish them to, or to areas that you wish to preserve. They have no effect on the environment, either positive or negative.

#### Hints

These are a lot more effective than trees for bordering in cities, since they are permanent.

City Limit





## CONSTRUCTION TOOLS



### NATIONAL PARK

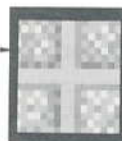
#### Function

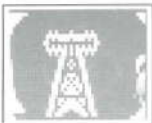
National Parks provide the best form of blocking in a city, in that they are both permanent and good for the environment. They are, however, quite expensive.

#### Hints

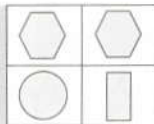
National parks are a very ecologically sound option: not only are they planted, but, because they are maintained, there is a knock-on effect on the permanency of trees planted nearby.

National Park





## CONSTRUCTION TOOLS



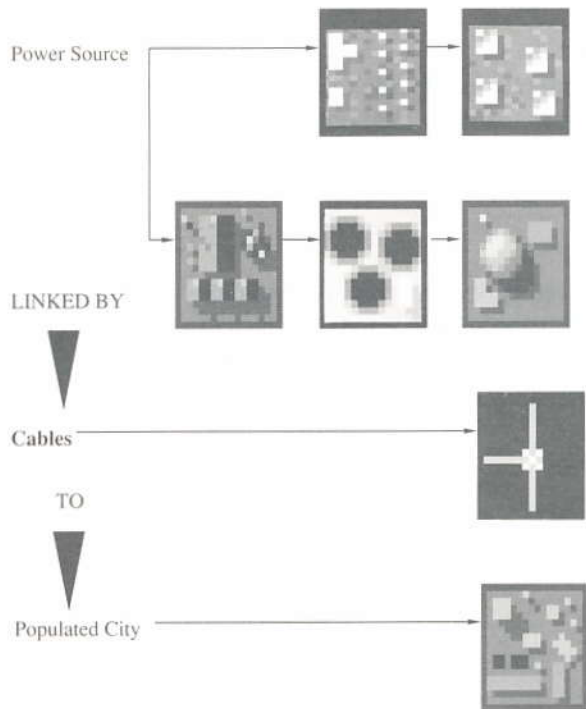
### POWER CABLES

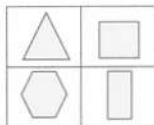
#### Function

Power cables are used to connect up the electricity supply from a power station to a distant city. Also, they connect power between city blocks that are not contiguous.

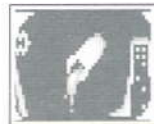
#### Hints

It is not necessary to connect up city blocks that are touching each other via other city blocks or constructions.





# CONSTRUCTION TOOLS



## PIPELINES

### Function

Pipelines connect up a variety of resources. These are: water, crude oil, refined oil, and sewage. They are required for the following:

Connecting **Water** to a **Water purification plant**;

Connecting **Water** to a **Nuclear power station**;

Connecting **Sewerage plant** output to **Water**;

Connecting an **Oil rig** to an **Oil refinery**;

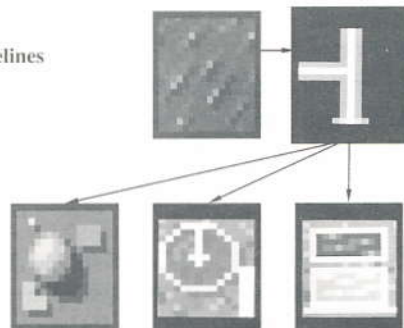
Connecting an **Oil refinery** to an **Oil fired power station**.

### Hints

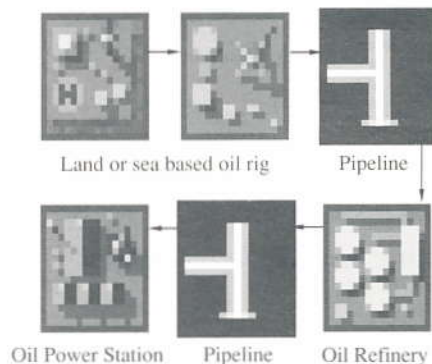
Do not mix pipelines!

Water Through Pipelines

TO

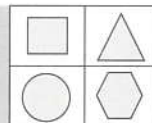


OR





## CONSTRUCTION TOOLS



### WIND POWER

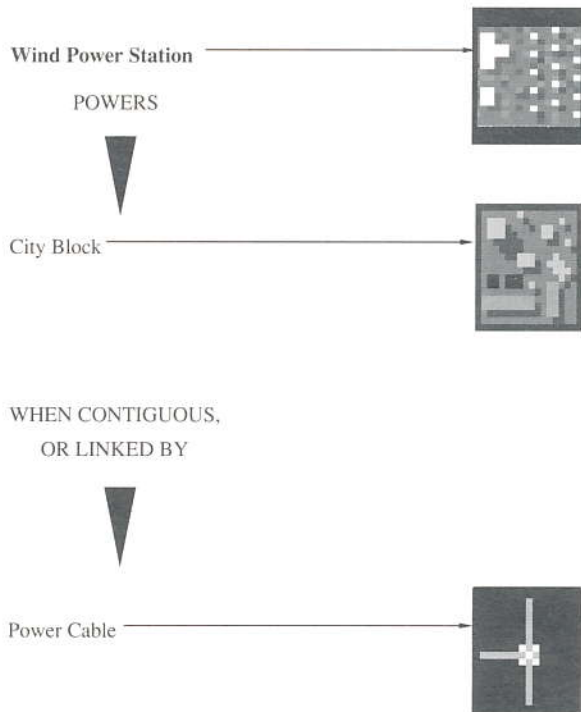
#### Function

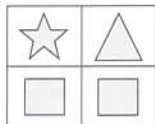
Wind power is cheap, and totally environmentally friendly. Although cheap, it will power only a small number of city blocks: around 20 or so.

#### Hints

Although useful at the outset of the game, because of its low cost, wind power will prove inadequate for rapidly expanding cities, unless you invest substantially in developing environmentally friendly technologies.

*See also: Investing in Technology*





# CONSTRUCTION TOOLS



## SOLAR POWER

### Function

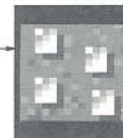
Solar Power is the more powerful of the two natural-resource power generators, but only by a very little amount, as it can only power up to about 25 blocks; it costs a little more than wind power.

### Hints

As with wind power, solar power produces no pollution, but will remain a limited form of power generation unless you invest in technological developments in environmentally-friendly power.

*See also: Investing in Technology*

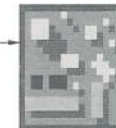
Solar Power Station



POWERS



City Block



WHEN CONTIGUOUS,  
OR LINKED BY



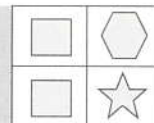
Power Cable







## CONSTRUCTION TOOLS



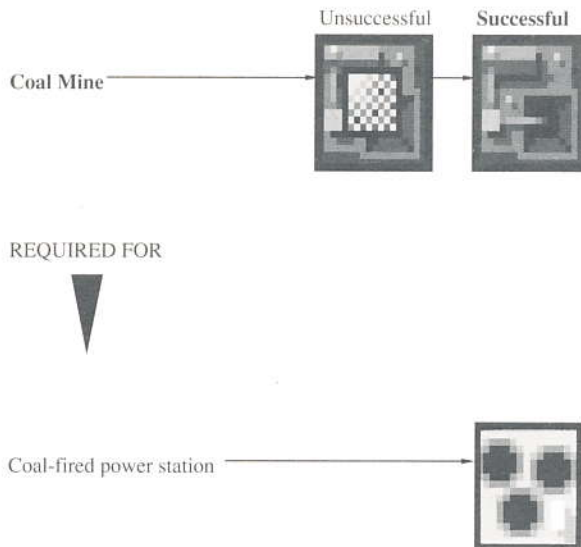
### COAL MINE

#### Function

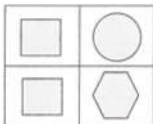
Coal is the easiest mineral to strike on most worlds; a coal mine is of use only when coupled with a coal-fired power station, which must be located within two squares of it.

#### Hints

Coal power is the worst polluter of all the types of power source.



*See also: Coal fired power station; Coal store*



## CONSTRUCTION TOOLS



### COAL FIRED POWER STATION

#### Function

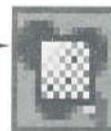
Coal-fired power stations are cheap, and produce quite a large amount of power (around 100 city blocks). Unfortunately, they are also very bad pollutants. The setting up of power with these is quite simple, as they are, coupled with a coal mine, a stand-alone form of producing power (no pipelines are needed to connect them up). To be powered, city blocks must be placed next to the power station, or connected via cables.

#### Hints

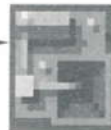
It is a good idea not to have too many of this type of power station, and, when possible, to replace them with cleaner forms of energy.

*See also: Coalmine; Coal store*

Unsupplied coal-fired power station



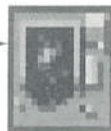
Coal Mine

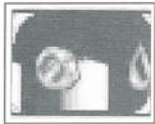


Successful coal-fired power station



Coal Store





## CONSTRUCTION TOOLS



### COAL STORE

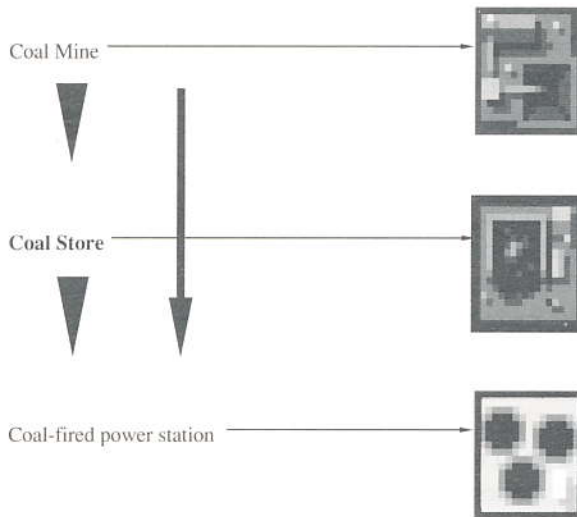
#### Function

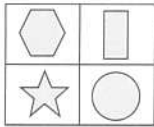
Coal stores will allow you to plan ahead for unforeseen circumstances: any break in the power supplied to a coal-fired power station will be counteracted by the reserves that build up in the coal store. A coal store must be placed within two squares of the coal mine that services it.

#### Hints

Various circumstances can result in a break in the power supply, many of them natural occurrences. Although power is one of the last things to be 'dropped' by the population, power sources in a city that is inadequately serviced will eventually decay. Power reserves at this stage can be vital to helping you rebuild a city.

*See also: Coal fired power station; Coal mine*





# CONSTRUCTION TOOLS



## OIL RIG

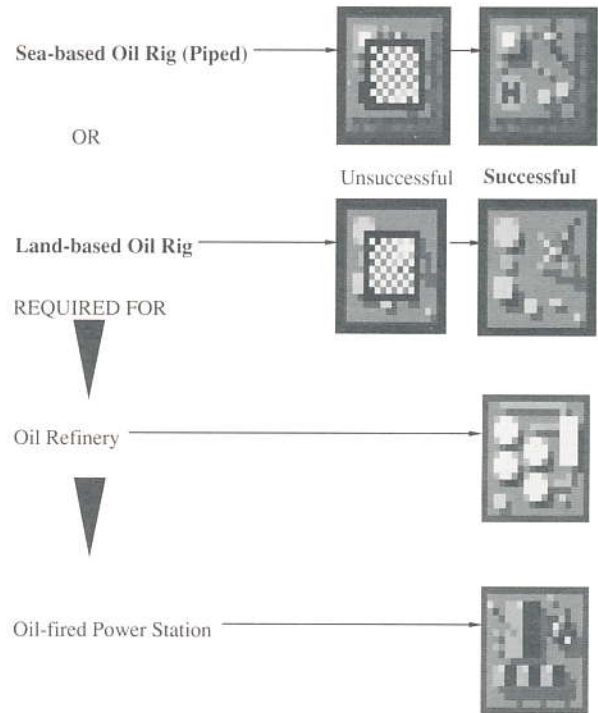
### Function

Oil rigs allow you to mine oil from the planet. They can be either land or sea based. If they are sea based, the oil will need to be piped first to the refinery, and from there on to a power station.

### Hints

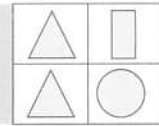
Having oil rigs on the sea can save you valuable land space for building, and also opens up to you a wide area outside the confines of your land that you can use to find a power source.

*See also: Pipelines, Oil Refinery, Oil Store.*





# CONSTRUCTION TOOLS



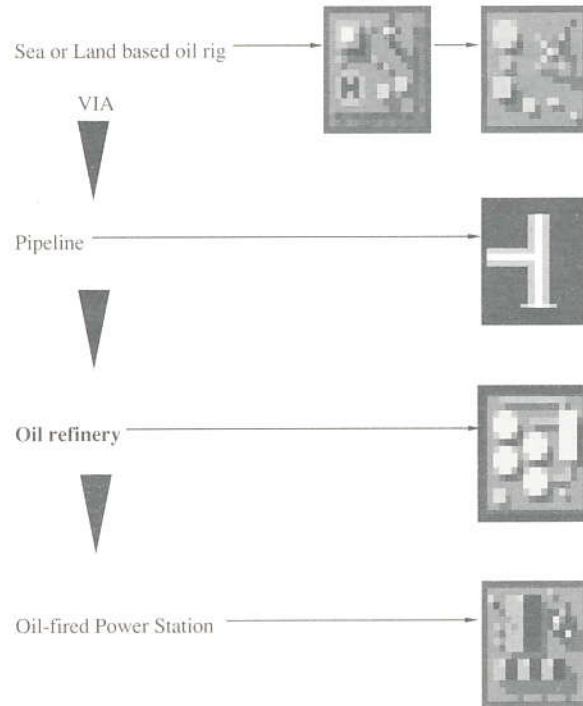
## OIL REFINERY

### Function

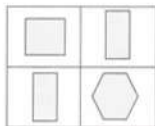
An oil refinery is the intermediate stage necessary in the production of power from oil. It takes the crude oil from an oil rig, and processes it to a usable form.

### Hints

This 'extra stage' in the production of power makes an oil-fired power source an expensive option to use. However, oil fired power has its advantages, notably that it can be mined off-shore.



*See also: Pipelines, Oil Rig, Oil Store, Oil-fired Power Station*



## CONSTRUCTION TOOLS



### OIL FIRED POWER STATION

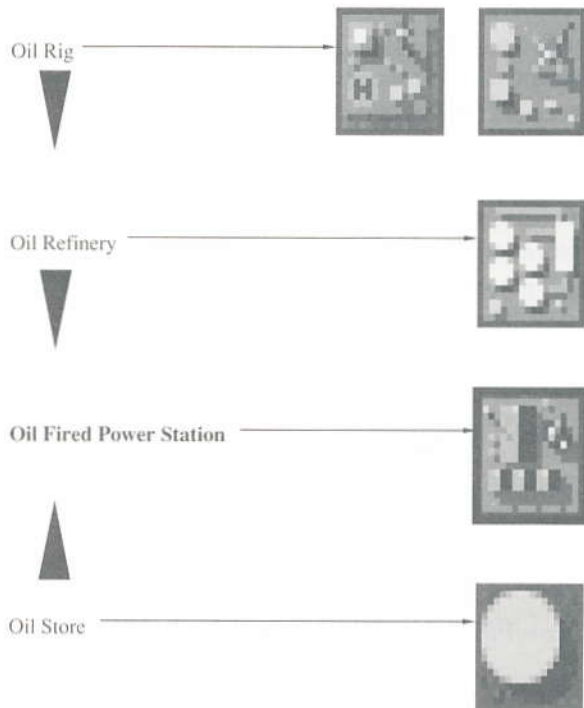
#### Function

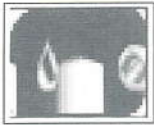
An oil fired power station, managing approximately 150 blocks, will provide power to a fairly large city. Its pollution level is lower than that of a coal fired power station, but higher than that of a nuclear one.

#### Hints

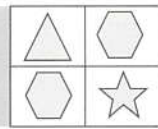
Although oil based power supplies do generate pollution, it is at a level considerably below that of coal fired supplies, so much so that it is nearly an 'environmentally acceptable' way of generating power. However, you will be burning a fossil fuel, which does diminish the natural resources of the planet.

*See also: Pipelines, Oil Rigs, Oil Refinery, Oil Store, Power Cables.*





## CONSTRUCTION TOOLS



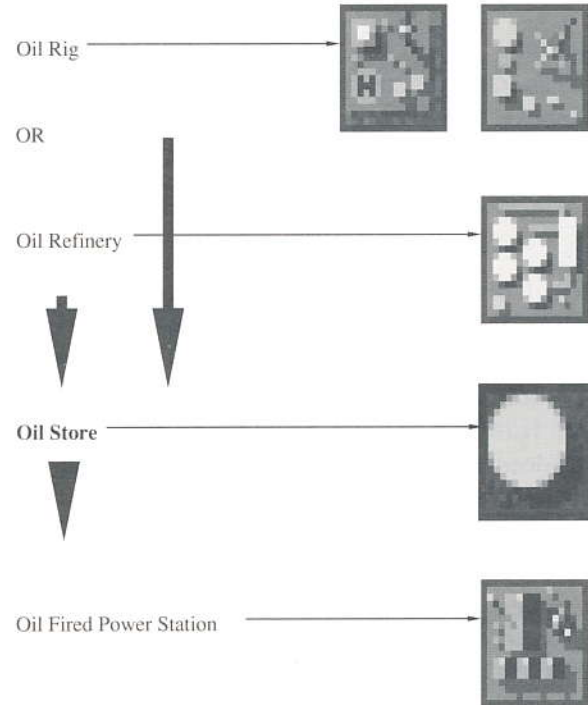
### OIL STORE

#### Function

Oil stores can be placed anywhere in the chain between the oil rig and and an oil-fired power station.

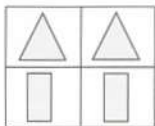
#### Hints

Oil stores are quite important as a contingency against a problem with piping oil from the sea to the refinery. They allow you time to rebuild your supply lines without removing power from your cities.



*See also: Pipelines, Oil Refinery, Oil-fired Power Station.*





## CONSTRUCTION TOOLS



### URANIUM MINE

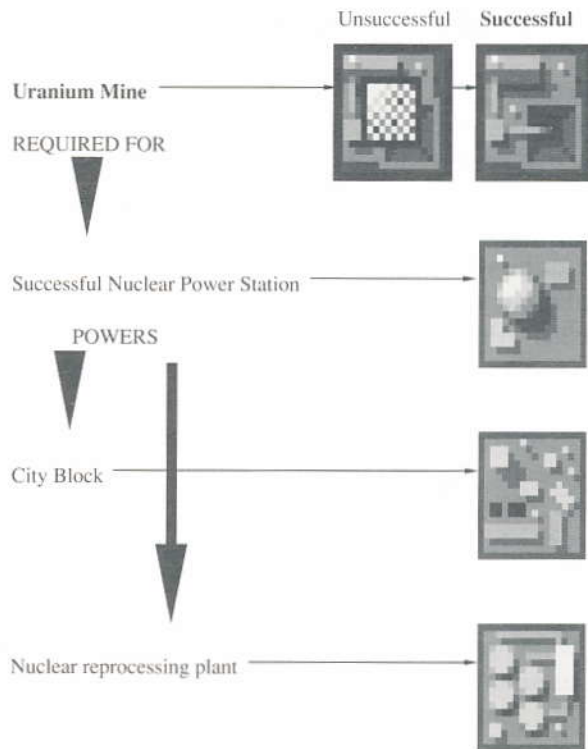
#### Function

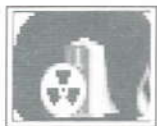
Uranium is the most difficult mineral to find on the planet, but produces by far the most power. Mines are the first construction in the nuclear chain.

#### Hints

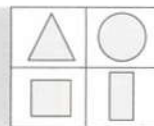
Because of its relative rarity, you may find it useful to do a seismic survey to find out whether there is a good chance of striking uranium in the area that you are developing.

*See also: Nuclear Power Station.*





## CONSTRUCTION TOOLS



### NUCLEAR POWER STATION

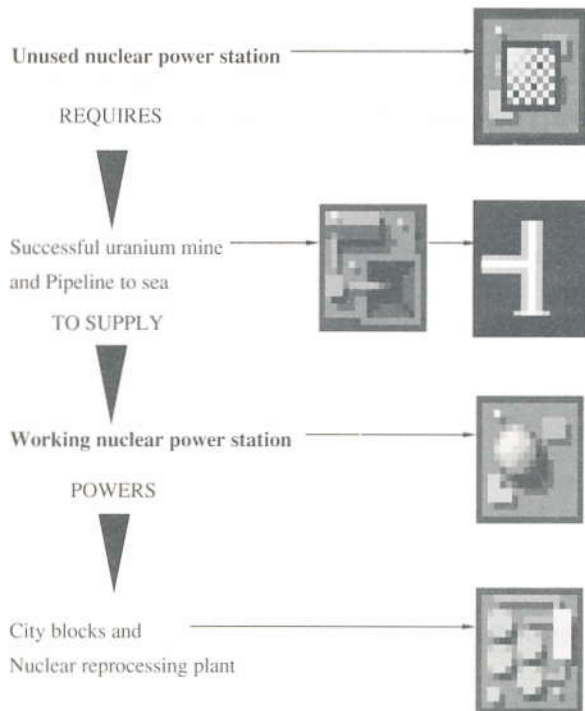
#### Function

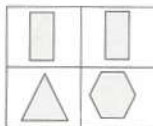
Nuclear power stations are by far the most powerful source of energy for your planet: it can power around twice the number of city blocks that a coal-fired power station can. In order to operate, a nuclear power station needs to be connected to a uranium mine, and must be linked to the sea via a pipeline. Although they cost more to develop, they give you a source of nearly pollution-free power. You will need a nuclear power station to produce re-processable waste for use in military applications.

#### Hints

Beware when using nuclear power: although clean and efficient, it is very dangerous if anything goes wrong. It is a very good idea to check that you are not building on seismic faults, where earthquakes can occur quite often!

*See also: Uranium Mine, Uranium Store, Pipelines, Nuclear reprocessing plant*





## CONSTRUCTION TOOLS



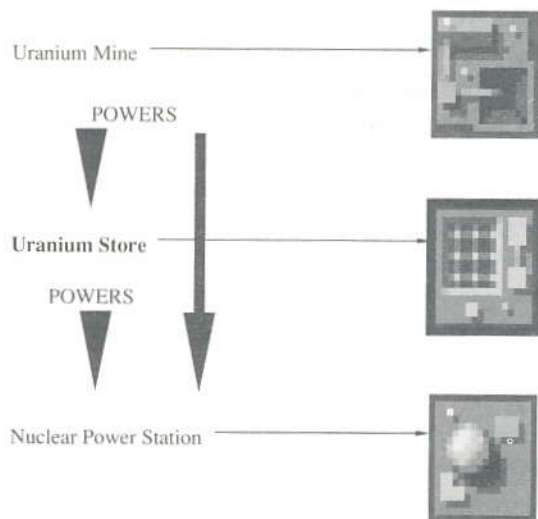
### URANIUM STORE

#### Function

A uranium store will keep a supply of uranium going to your power station if one of your mines gets cut off. It must be placed within two squares of the mine in order to be supplied, and within two squares of the power station to supply that.

#### Hints

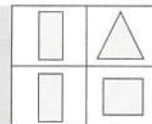
As you will be supplying very large cities with nuclear power, it is vital to have a provision against a possible power cut, which would affect your cities very badly. Also, if you are engaging in nuclear conflict, your supply of nuclear fuel to the reprocessing plant is very important.



*See also: Uranium Mine, Nuclear Power Station, Nuclear reprocessing plant.*



## CONSTRUCTION TOOLS



### NUCLEAR REPROCESSING PLANT

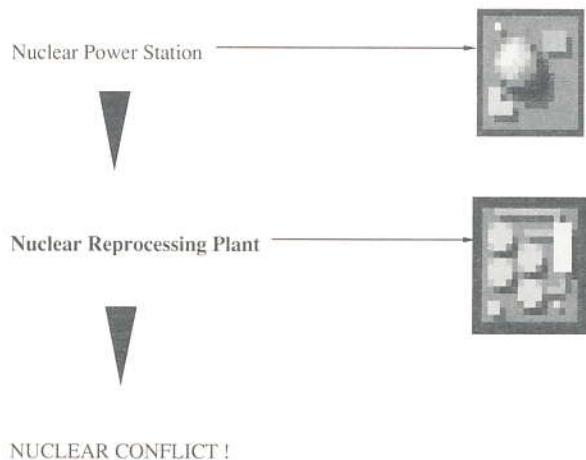
#### Function

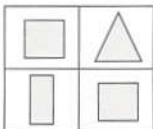
Nuclear reprocessing plants have two functions: to cut down the waste emanating from nuclear power stations, and to make that waste into a form useable for military applications. You will therefore require a nuclear reprocessing plant to produce the plutonium you need to engage in nuclear conflict. Without it, your military forces remain entirely conventional-based.

#### Hints

By reprocessing the waste nuclear fuel you cut down pollution from nuclear power to virtually nothing, thus making nuclear power a very environmentally acceptable option. However, used in nuclear conflict, this reprocessed fuel is anything but environmentally friendly!

*See also: Uranium Mine, Nuclear Power Station, Nuclear conflict.*





## *CONSTRUCTION TOOLS*



### **BATTLE TOOL**

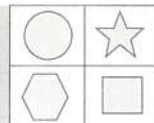
#### **Function**

This tool icon does not in fact do anything. It appears when you open the battle menu, or engage in battle instructions. It is simply there to show your current status.

*See also: The Battle System*



## CONSTRUCTION TOOLS



### INFORMATION REQUESTER

#### Function

The information requester will give you data on whichever blocks you then click on. It will show you the following things:

**Block examined:** The icon of the block you clicked on.

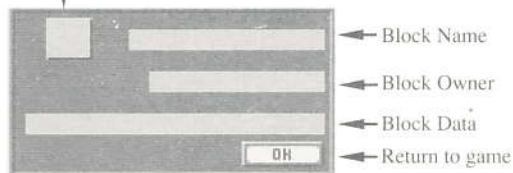
**Block name:** The name of the block you clicked on

**Block owner:** Who owns the block: you, the serial player, or the computer player.

**Block data:** Information on the current status of the block.

#### Information Requester

Block Examined



## *BUILDING YOUR CITY*

### **BUILDING YOUR CITY**

#### **How to go about it**

A city is very complex, and there are many different ways in which to create one. In Global Effect you will find that you have considerable choice as to how you do this. You will be able to decide on which forms of power to use, where they are placed, how you deal with sewage and supply problems, and even defense.

Starting your city construction will be the hardest thing to do. When you start the game on a 'Create a world' scenario, you will be starting from scratch, in other scenarios your cities may already be present. Initially we shall discuss starting a new city from scratch, showing how we could build one up - which will be of benefit regardless of your choice of game type.

It is a wise idea to start with a natural form of power, either solar or wind power. This way you will not have to spend much of your energy, and

will start generating power immediately. You can now either use cables to separate your power station from your city, or just select city construction from the tools menu and begin. Either way, you will be constructing your first settlements. When you build them, they will be in dark colors, but, once power has been supplied to them and they are connected, (which can take a varying amount of time depending on the form of power you are using and how complicated the cabling is) they will light up, indicating that you have a powered and working city.

At this point, Global Effect comes to life. Cities, given power and plenty of clear land, expand all by themselves. You will have to be careful of this initially, as it is very easy for a city to expand beyond your control at such a rate that you effectively bankrupt yourself. It is a good idea to start small, and keep things bordered in with trees, or city borders.



## *BUILDING YOUR CITY*

If you do have a serious problem with city expansion, and you have little power left, as a last ditch attempt, you can demolish a row of city blocks around the edges; this will cost less than building a city border, trees or a national park but will be at the expense of an area of city.

If you do demolish a city, or any other man made block, you will create wasteland. Wasteland is an area of land that cannot be used for construction because it is full of industrial waste of various types, which could be anything from pollution on a large scale, or a derelict city that has been demolished. Over a long period of time, wasteland turns back to usable land - but if you have lots of power, and wish to accelerate this process, then you can select the 'Convert waste to grassland', a very expensive method of creating useable land again. Beware of having too much wasteland. When you have suffered a conventional attack, land will be reduced to waste if it had man made blocks on it. Only a very few man made items do not revert to waste.

Pipes, cables, farms and natural power stations will revert to useable grass land again if demolished. Once your city gets to a reasonable size, it will start to require some basic services. These include a fresh water supply, a sewage disposal system, a good farming network, and possibly some effective usage of recycling plants. You will have to supply all of these; be careful where you build your sewage and water plants, as these require a non-shared pipeline to the sea, which can only be finite in length. As a general rule, a service block, such as a farm for instance, is capable of supplying to an area of 16 blocks square.

Natural power is very bad for supplying a reliable source of power to large cities, and simply having large numbers of them may not help. Sooner or later, you will have to decide whether to invest in developing natural power sources' efficiency, or decide which one of the other available forms of power to use next. These are, coal, oil and nuclear. Coal is cheap, and is usually the best way to start -

## *BUILDING YOUR CITY*

but in order to power really large cities without suffering massive pollution problems, you will have to consider oil and nuclear.

Once you have decided on one of these forms of power, unless you wish to build mines and use pot luck, you will have to use seismic surveys. These are an expensive, but very reliable, way of telling you about the area of land you are looking at. Not only does it tell you the probability of striking coal, oil or uranium, but it tells you how likely seismic activity, such as volcanoes and earthquakes are to happen.

While building your city, be sure to keep a good eye on the information you receive in the message area at the top of the screen. They will be helpful pieces of information telling you how you are getting on, and what is happening.

# THE BATTLE SYSTEM

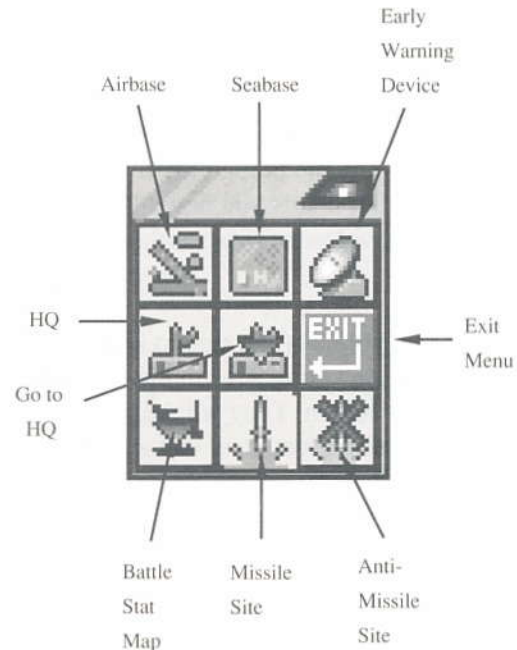
## THE BATTLE SYSTEM

War is the single most serious ecological event that can happen to your world. In a matter of seconds, you can undo tens of years of careful environmental planning. Your actions may even be fatal for both you and the other player. You can conduct your military gameplay as either defensive, aggressive or both.

When you decide that you want to deal with the military aspects of a civilization, you must select the **Battle Menu** option from your GovCon. A new menu will slide down, showing you the various military options you have available to you. Before you can perform any of these tasks, you will **have to build a HQ**. This is a very expensive item, and without it you cannot defend yourself, or launch any kind of strike. Once you have a HQ, you will be able to select the battle map, and consider building up your forces.

Battle menu options are displayed opposite:

## THE BATTLE MENU



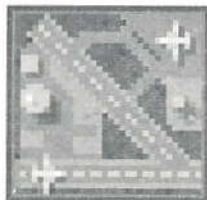
## THE BATTLE SYSTEM

### Airbase

An airbase takes a considerable amount of space (four blocks). Once built, you are able to launch planes. Planes are reasonably expensive to launch, but can carry multiple payloads. In addition to this advantage, after they have performed their missions, they can come home and land again.



The representation of an **airbase** on the game area is as follows:

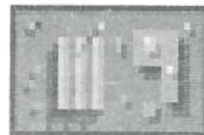


### Seabase

This is the most expensive, but most versatile, option available to you. In order to construct one of these you will need to find a suitable area of coast. A sea base takes up two squares of coastland. Once you have this you will be able to launch ships. Ships are slow, but they are mobile missile sites. You are able to launch both conventional and nuclear missiles from them.



The representation of a **seabase** on the game area is as follows:



## THE BATTLE SYSTEM

### Early Warning

These are essential if you wish to defend yourself effectively against enemy attack. They watch over an area of around 100 blocks, and should anything suspicious happen, you will get a warning message and the alert will sound. It is a good idea to defend your most important military and economic targets (such as good nuclear power station sites for example) with these.



The representation of an **early warning device** on the game area is as follows:



### HQ

The HQ is the most expensive item that Global Effect has. Once you have this, you are deemed to possess the staff and control to actually oversee and conduct a military campaign. You need one of these to do any of the other options listed here.



There are certain limitations as to where you can construct your HQ. When you first start your game, you will be at your original home point. Everything that happens is centred around this point. More importantly, your HQ must be close to here. If you try to build your HQ too far away from this point, you will be warned, and you can press on the centre button of the movement control on the GovCon to go to your original siting point.

The representation of a **HQ** on the game area is as follows:



## *THE BATTLE SYSTEM*

### **Goto HQ**

Pressing on this will take you to your HQ, power permitting.



### **Battle Stat Map**

Once you have selected this option, a world map will be generated showing just two colors, one for coastlines, and one for landmasses. In addition to this, all of your own military actions are plotted, including Early Warning coverage areas, all of your bases, and current active units.



### **Quit**

This quits the battle menu and returns you to the main GovCon panel.





## THE BATTLE SYSTEM

### Missile Site

This is the cheapest of the military items to build. You need one of these before you can launch missiles, which are fast, and can carry nuclear warheads.



Missiles, of course, do not return after their mission, so are an expensive option, but the only option if you wish to conduct a rapid, surprise, or nuclear strike.

### Anti-Missile

These work like missiles, but are very short range, and very fast. They carry conventional warheads, and, if within a short range of an Early Warning



Device, will automatically fire missiles, which will home into the nearest logged item in the Early Warning device. On impact they will explode, and destroy the incoming attacker. If there is no Early Warning Device within a short range, then you will have to fire and target the Anti-Missiles manually, which is done in the same way as launching normal missiles.



## *THE BATTLE SYSTEM*

### **HQ Ranges**

Military bases, that's air, missile, ports and early warning devices, must be built within a certain range of your HQ. This is so that the HQ can communicate information to them to enable them to function. This range is actually quite a large distance, around thirty to forty separate blocks from the HQ's position, so there is a high degree of flexibility when it comes to organizing your forces.

### **ACTIVE UNITS**

Once you have built your HQ and your first base capable of launching something, you can engage your first **active unit**. An active unit can be a plane, a missile or a boat. You have considerable control over your active units, including selecting and aborting missions, manual control, and self destruction.

To launch an active unit, you will need to bring up the military base menu. To do this, hold the **right mouse button down over the base** (either Air, Sea or Missile) **and click briefly with the left button**. A small menu will appear. If you have done this operation over an HQ or an early warning device, the menu will usually consist of only two options, KILL and CANCEL. Select kill to destroy the base, or cancel to abort the operation. If the base you selected was capable of launching active units, then there will be a third option, entitled NEW. Select this to get the **Mission Selector Menu**.

## *THE BATTLE SYSTEM*

### **Mission Selector Menu**

Mission targets can be selected on the Battle Status Map, simply by clicking the mouse where you wish to target. A small dot will light up to show it has been selected. Four targets can be active at any one time. Any inactive targets are shown as blue on the map. If you select targets and launch to them, you can select a four new ones without affecting the units already flying. In fact, you can then adjust any unit to a new mission.

Pressing on the RECALL button on the mission selector recalls the targets one by one. You can see the X and Y of these coordinates shown, and fine adjust them yourself using the arrow buttons if you wish. Planes and boats require bombs to be loaded. On boats, these are actually missiles. You can load up to six, power permitting.

If you do not select a mission, but still launch the unit, it will then fly South East at the default speed

until you take control of it, or until it runs out of fuel - with the exception of boats or anti-missiles. Boats simply sit in harbour and do nothing, anti-missiles will try to lock onto a target, and if they fail to strike, they will then just fly until they drop out of the sky.

Select LAUNCH to launch the unit, and CANCEL to cancel the operation.

If you choose to launch the unit, it will then start off on its chosen mission. If you selected missile, and you have the capability to launch a nuclear strike, then you will get an additional menu, allowing you to select either conventional or nuclear warheads. Nuclear warheads are very expensive.

# THE BATTLE SYSTEM

## CONTROLLING YOUR ACTIVE UNITS

Once you have launched your active unit, you can decide how involved in the mission you wish to be. It can be left to perform its task, or you may find that you want to take over and control it manually, or change its mission. You can select an active unit in the same way you bring up the military base menu, by holding the right mouse button down and clicking on the left, with the pointer selecting the unit you wish to control.

You now get the Active Unit Control Menu (AUCM). From the AUCM, you have a considerable array of options. You can either destroy the unit immediately (very rare) using **KILL**, take manual control by selecting **COURSE**, allowing you to specify direction, and, for planes and boats, stop and start (planes circle), change missions using **MISSION**, change its aggressiveness and check its status using **STATUS**. Mean units will

engage any enemy unit along the way, nice ones will not, **BOMB** to drop a bomb now, or simply detonate immediately for a missile, **HOME** to make this unit return home, or **CANCEL** to abort the menu.

At any time, you can consult your Battle Status Map in order to see where all of your units are.

## *THE BATTLE SYSTEM*

### **COLLISIONS BETWEEN ACTIVE UNITS**

If two active units collide, then they may fight each other. Should this happen, then the most powerful of the units will probably win the battle. In an emergency, you can use this facility as a form of defense - by simply aiming a fleet of missiles into the middle of an oncoming attack, you can reasonably hope to destroy some of the approaching force.

The most powerful active unit is the boat, as it carries a high degree of defense, missiles, guns toward of attackers, and it is very large - and is therefore harder to eliminate. A plane is next on the list, followed by missiles. The least powerful is an anti-missile, but that carries a special warhead, and will automatically destroy attacking missiles, and seriously damage, if not eliminate, oncoming planes. It has little effect against boats.

### **THE EFFECTS OF WAR**

War is a dangerous thing to engage in if you are not totally ready for it. Considerable planning may have to go into even the smallest conflict in order to avoid potentially terminal damage to your environment.

When a conventional bomb goes off, its effect is to cause minor pollution, contamination and destroy an area consisting of five blocks. Repeated bombing, perhaps even carpet bombing (where you repeatedly bomb in the same area with a small distance between each bomb, resulting in total destruction of a strip of land) may cause additional contamination.

Nuclear conflict is where rapid damage is caused. Be sure that the environment can take the effects of a nuclear attack before engaging it. You will also require quite a large amount of power in order to both launch the missile, and to absorb the damage to the world and start a possible clean up campaign. A nuclear explosion causes a considerable amount of

## *THE BATTLE SYSTEM*

contamination, which may render land totally useless to work on. More than 30% contamination will ensure that you cannot perform any action at all until it has died down. Contamination has a bad effect on anything in that area: it will cause cities to fall into disrepair, people will die, trees will die, and considerable amounts of wasteland and maybe even desert can form.

Repeated contamination will have serious effects on the environmental balance, causing unpredicted effects (at worst, a nuclear winter) which you may not be able to cope with. You may therefore be able to win in the short run, but could have committed suicide in the long run, so plan before using!

# THE ENVIRONMENT

## THE ENVIRONMENT

Global Effect simulates the environment around your cities and wars. Things you do will affect it, and things it does will affect you. It is a very finely balanced system, which is easily upset by both natural and man-made events.

The world around you consists of 64,000 locations which can be one of the following basic land types:

### Grassland

Grassland is clear, open, land which you can construct on. Trees will only grow on grassland. It has a moderately positive effect on the environment, absorbing very minor amounts of pollution and contamination over time. Excessive pollution and contamination can cause grassland to deteriorate into wasteland.

### Desert

Desert is sandy land, perhaps once grassland. This is usually found in warmer areas of the world, near the equator, but can happen near war-zones. If deserts expand over your cities, they will absorb them and reduce them to rubble (or perhaps wasteland) as they go. Trees on grassland around borders of deserts can go a long way to slowing the advancement of deserts, but cannot prevent it totally. Nothing can be built on deserts.

### Mountains

Mountain areas can not be demolished. They are the only permanent features of the world. You may find mountainous areas of land surrounding deserts. You cannot build over them.

### Swamp Land

This is found in the tropics normally. It is grassland that has become waterlogged, and is usually found near the coast or at the foots of mountains. You



## *THE ENVIRONMENT*

cannot build on this land, and over time, if conditions are right it can be made to dry up so you can work there.

### **Polar Caps**

They are the polar equivalents of deserts: plain, inhospitable, areas of land that are cold. The world has two polar caps, and, if temperatures rise, they will melt causing sea levels to rise slightly. The inverse effect will cause sea levels to fall, revealing new land.

### **Trees**

There are two sorts of trees, coniferous, and deciduous. Coniferous trees will provide their effect all year round, but grow only in the cooler regions of the world. If you build them elsewhere, they will die quickly. They take longer to grow, and therefore cost more. Deciduous trees are quick to grow, and provide a more efficient way of reducing pollution and contamination. These grow best in the tropics and in the equatorial areas. Be careful to plant the

right trees in the right places: bordering in a city at the equator with coniferous trees may not be such a good idea, as the trees will die rapidly, and your city may suddenly expand rapidly and beyond your control.

### **Wasteland**

Although it has already been discussed elsewhere, its included here to make this section more complete. Wasteland cannot be built on, although you can run cables and pipes over it. It is dead land, but if conditions are favourable it will revert to grassland over a period of time, or, if power is sufficient you can do this yourself.

### **Sea**

Sea, or water, is vital for your survival. You will need your oceans for lots of things: for sewage, for fresh water and nuclear power, for instance. Your military actions with boats also depend on it.



# THE ENVIRONMENT

## Contamination

This is the last of the basic land types. Contaminated land is bad news: it causes things around it to die, or fall into disrepair. Over a period of time it will revert to wasteland, and then grassland, but this takes a long long time. You can help this process by planting trees around contaminated areas if radiation levels permit this. Contamination can be caused by serious over-pollution or combat.

## ENVIRONMENTAL EFFECTS

This section is purposely scarce, in order for the game to be more difficult. Lots of the effects on the environment are obvious: if you chop all the trees down, then there is nothing to produce oxygen, absorb pollution and CO<sub>2</sub>, so effects on the temperature and sea levels will happen accordingly.

In some conditions, it acts as a positive feedback, the effects will be exaggerated along the same line as you go on and so forth, and these may have to be stopped rapidly in order to avoid total doom.

Likewise it can work in a negative way - things you do can dampen these effects further on in the game.

You will have to look at your environmental status graphs, such as CO<sub>2</sub>, temperature, and pollution, in order to gauge your next actions. These graphs will provide you with limited information on request, such as the percentage growth since the last

# ***THE ENVIRONMENT***

measurement for example. This will allow you to see quickly and at little cost what has happened as a result of your actions.

In addition to these coverage graphs, you also have a balance bar chart which shows at a glance the rate of expansion or contraction of the various land types (all of the above described land types will be listed except sea, wasteland and contamination). If you check this table around one game year after a small nuclear conflict, you may have extreme cause for concern!

## **DISASTERS AND SEISMIC ACTIVITY**

There are several things that can happen to your world that are beyond your control. These are the natural disasters, which in most cases are caused by seismic activity.

### **Earthquakes**

If an earthquake occurs you will receive a warning message, and you can then click on the button to the right of the message display to be transported directly (power permitting) to the area in question. The effects of an earthquake are to reduce some cities to rubble, and to fell trees. The amount of damage done will depend on the strength of the earthquake. Earthquakes can be brought on artificially by conflict.

### **Volcanoes**

These are rarer, but also happen in seismically unstable areas of land. If they do occur, they simply cause a vast new mountain to appear, and lots of air

# ***THE ENVIRONMENT***

pollution will appear. Surrounding land may be damaged, and there could be an accompanying earthquake too.

## **Other Effects**

There are additional natural disasters that can potentially occur, but these will remain hidden and you can discover yourself what they are. Each of them provides a different environmental problem.

## **CARING FOR YOUR ENVIRONMENT**

You will have to take special care to keep pollution at a minimum. Continual usage of coal fired power stations for example, coupled with bad waste re-processing will result in bad environmental effects.

# ***THE COMPUTER PLAYER***

## **THE COMPUTER PLAYER**

If you have selected create a world against the computer player, or one of the scenarios where it is active, then not only do you have to consider your environmental problems, but you suddenly have his problems to deal with also. If the computer player engages in an industrial expansion program, then you will have to clean up the aftermath unless you can stop it from happening - which is where combat comes into play.

On the scenarios other than create a world, you will find that the computer players statistics are already set up for you. If you select create a world you get to decide for yourself how the computer player will conduct the game, whether in a military, environmental or industrial fashion, or any combination of the three.

The computer player is very intelligent, and it may surprise you sometimes in its actions. Quite possibly you will learn lots of new tactics watching it play against you!

## *THE SERIAL PLAYER*

### **THE SERIAL PLAYER**

With this option, you can link two machines together and play head to head. So long as you have the correct cable, you can link any of the formats available together. For example, you can link an Amiga to a IBM-PC compatible. See the appendix on making a null modem cable for further information.

You will get the option to decide on four speeds of operation. The transmission speed that you select will depend on the length of your cable, and the speed of the machines that you are using.

If one of the machines is a normal unaccelerated Amiga 500, it is recommended that you use 9600 baud, but, if the cable is very long, 4800 baud. If you are using fast PC compatibles, such as 10 to 12Mhz, you can try 14.4K or 19.2K.

If you are unsure of the speed to use, select 9600. If you have problems with the link, such as serial sync. errors, or strange problems with the game, try it again using 4800.

Although it is technically possible to play Global Effect using a Modem, it is not recommended at all. Because of the vast volumes of data that are transferred between the two machines, it is not possible to use extensive self-correcting error protocols, which means that unless the line is at least 95% accurate then it will not work. Many modem-based protocols pause regularly to recalculate line speeds. This would crash a game of Global Effect.

The modem facility is present, but use it with care.

## APPENDIX - MAKING A NULL MODEM CABLE

### MAKING A NULL MODEM CABLE

A null modem cable is the cable that is required for you to link together two machines (Amigas can be linked to IBM PC Compatibles without any problem). The cable is fairly simple to make, but it is recommended that you buy one if you have no previous experience with a soldering iron. Make sure that if you do buy one, that you **imperatively get a Null Modem Cable**: the cable linking your serial port to an existing printer, modem, or other serial device will **NOT** function correctly, and one or both of the machines might get damaged by it.

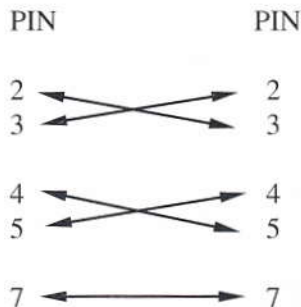
If you are constructing your own cable, be very careful that you connect up the cable correctly. Millennium can in no way accept responsibility for any damage to your equipment due to your handiwork!

### THE CABLE

If you take the appropriate care, the cable is in fact very simple to construct. You will require only:

- 2 of 25way D connectors, both female.
- Connecting cable of a length suitable for your needs.

The D connectors should be linked as follows:



To summarize, pin 2 of one goes to pin 3 of the other, and vice versa; the same goes for pins 4 and 5, and pin seven is connected directly across.



# GLOBAL EFFECT

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# ***GLOBAL EFFECT***

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