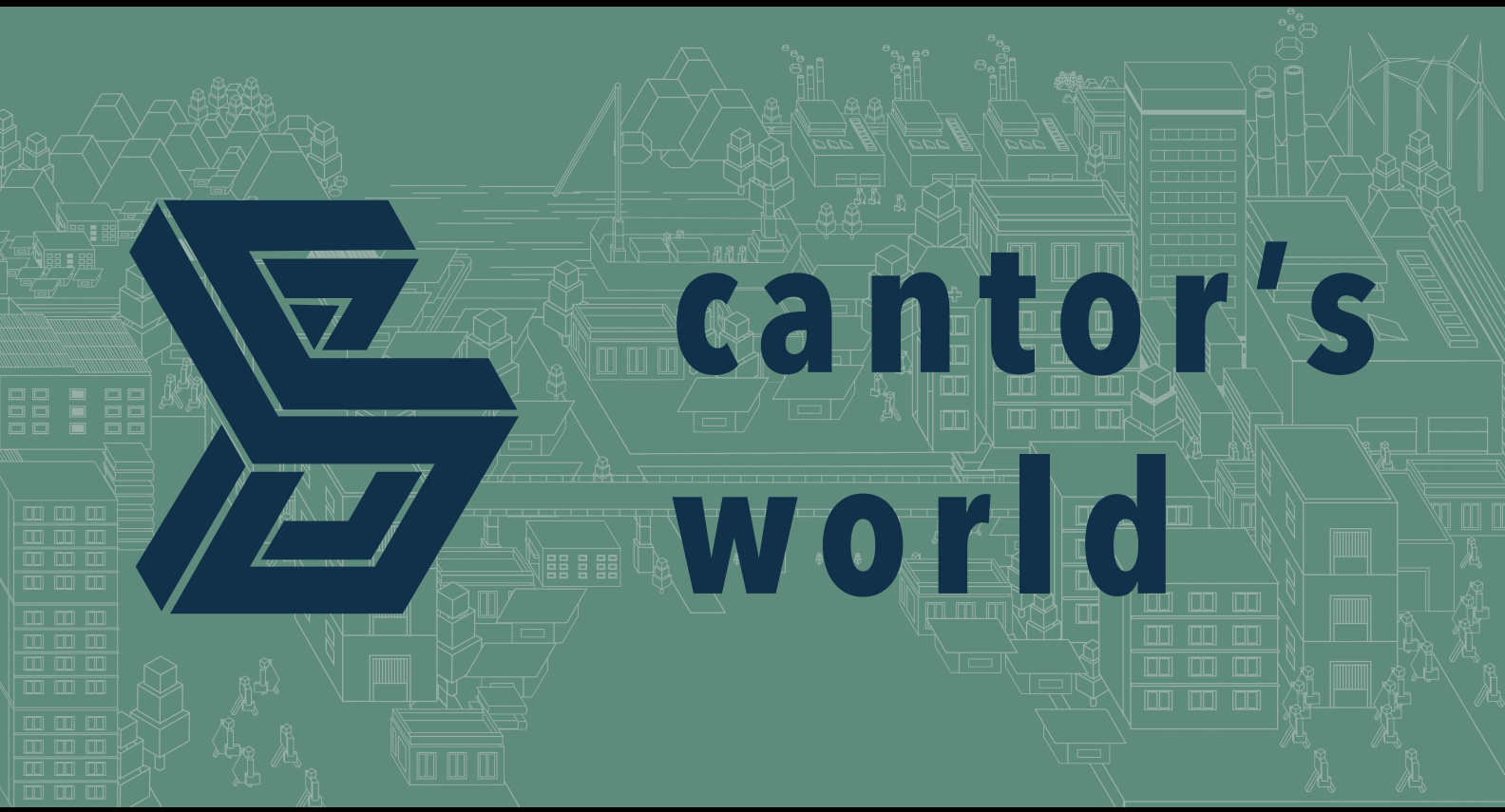

cantor's world

FACILITATOR'S MANUAL

United Nations
Educational, Scientific and
Cultural Organization

Mahatma Gandhi Institute
of Education for Peace
and Sustainable Development

Fields of View

CONTENTS

About Cantor's World 1

Facilitating the game **3**

Requirements for the game 3

Log in and out of the game 4

Adding users to the game 5

Adding a template to the game 7

Adding an instance to the game 9

Adding and removing users to the game 11

Playing the game

Monitoring player submit statuses 13

Viewing Player Data 15

Viewing Graphs 16

Getting Help **17**

List of Tables

2.1 Guidelines for the Template Form 8

List of Figures

2.1 Landing Page 3

2.2 Login Page 4

2.3 Facilitator Home Page 4

2.4 User Navigation Panel 5

2.5 User Details Page 5

2.6 Create User Form 5

2.7 List of Users 6

2.8 Your new user 6

2.9 Template Navigation Panel 7

2.10 Template Details Page 7

2.11 Create Template Form 7

2.12 List of Templates 9

2.13 Click on Instances on the Navbar 9

2.14 Instances Page 9

2.15 Create Instance Form 10

2.16 Create Instance Form 10

2.17 Adding Users to an Instance 11

2.18 Viewing Users in an Instance 11

2.19 Deleting a user from an Instance 12

2.20 Player Statuses after they've chosen a country 12

3.1 Gameplay screen of Facilitator 13

3.2 Gameplay screen of Facilitator 13

3.3 View player's policy investments 14

3.4 Click on the country flag to switch instances 14

3.5 Data form on data page 15

3.6 Data form on data page 15

3.7 SDG page 16

3.8 Graph page 16

cantor's world

About Cantor's World

The actual decision-making involved in running a country is about finding the most efficient use of limited resources. The process of making a decision from the nearly infinite set of choices, with different combinations of inputs and outputs, makes it a nontrivial task. This is especially the case at the macro level where governments need to make decisions on investments for economic growth while ensuring high rates on return of these investments towards the Gross Domestic Product (GDP).

Traditionally, the focus of most governments has been to maximize GDP. Human well-being was understood as being synonymous with economic growth measured by income growth. And therefore, the question of sustainability was never an issue. This has, however, changed over the past few years. The increasing recognition of the finite nature of resources and the increasing attention to negative externalities accruing from economic activities has made it necessary for governments to address the sustainability dimension of economic activities. Equally important has been the recognition that just growth in income or GDP does not automatically contribute to well-being.

Hence, there is a need to make a distinction of what we want to measure. What do we mean when we say a country is growing? Can we say that a country is growing if the GDP is growing? Remember, GDP is the value of all final goods and services. So, it is a flow just as if an individual gets income at the end of every month if the person is working. Some might say that this is a good indicator to evaluate if the country is growing.

Are there other indicators that one can use?

The Inclusive Wealth Model (IWM) developed by Partha Dasgupta and Ken Arrow offer a viable substitute for GDP to measure progress. The underlying premise of the Inclusive Wealth Index (IWI) is that the real progress of a country should be not based on the flow of income produced by the stock of capital a country is able to accumulate. We could have an indicator based on the stock of assets a country owns. The focus shifts from flow to stock. So, the important factor here is not the income per se generated in each

time period but the asset base or stock in each time period from which the income is generated. This also shifts the focus from the present to the future.

This raises a number of interesting questions that we must find answers if sustainability is to be also addressed:

First, if GDP is the most appropriate indicator to measure the wellbeing of society?

Second, how do we ensure the sustainability of GDP if it is agreed among policymakers that it is a good measure or proxy for wellbeing?

Third, If GDP falls short of measuring wellbeing, then can the SDG's be used as a measure of wellbeing?

Fourth, do we need resources to achieve the SDG's and if yes, what measure can we use to track the use of resources?

Fifth, can the Inclusive Wealth Index (IWI) be a useful indicator to measure and track the use of resources?

Sixth, can we achieve the SDG's while at the same time ensuring a sustainable use of resources?

To answer these questions, we have...

Cantor's World, one of the many learning products developed by UNESCO MGIEP. It is a simulation based game developed to understand the Inclusive Wealth Index, and to understand the uncertainties involved in governing a complex socio-economic system of a country. The game is targeted towards master's level students of economics and sustainability studies and mid-career policy makers. The participants play the role of the sole architect of the country and decide specific targets for their respective countries. The players then make changes to the various parameters in the game through specific policy interventions that are available as either monetary investment or regulatory change or providing subsidies.

The players' decisions affect the status of resources in the country and have a cascading effect on the produced, natural and human capital. The player's objectives in the game are both personal and global wellbeing. The facilitators of the game session are able to monitor the decisions and trajectories of the players in the game. Cantor's World is supplemented with well-defined learning outcomes including a curriculum framework with eight one-hour modules to direct the flow and usage in classroom setting.

FACILITATING THE GAME

Requirements for the game

To play the game you'll require access to the internet and one of the following supported browsers: **Chrome** (or **Chromium**), **Firefox** or **Opera**. You will also have to enable cookies on your browser in order to play the game. We do not collect your personal information for any purpose.

Please login to the URL provided to you by the facilitator.

Welcome to Cantor's World. Please click on **Enter** to continue as shown in figure **2.1.**

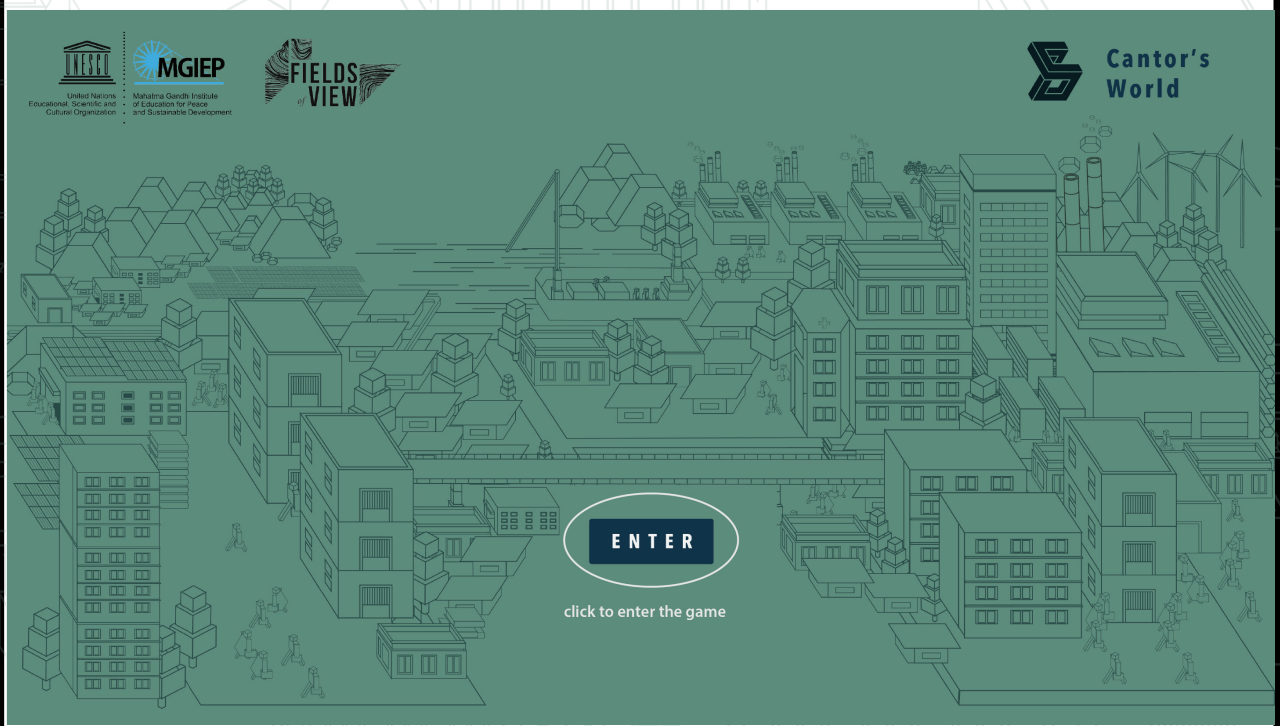

Figure 2.1: Landing Page

Logging in and out of the game

After your game facilitator has provided you with your credentials to play the game please ensure that your password is case sensitive and username in lowercase characters. In case you forget your password, please contact your administrator.

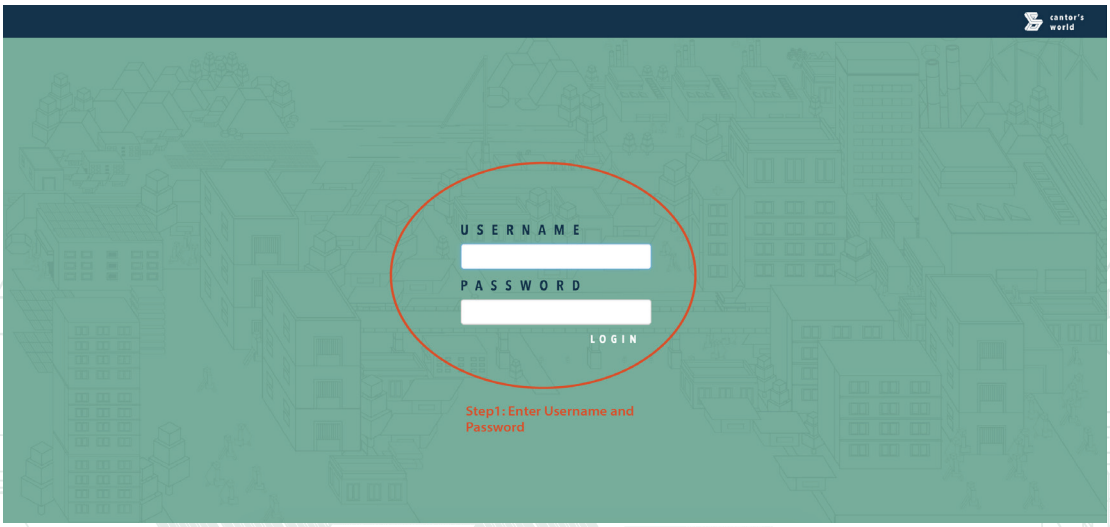

Figure 2.2: Login Page

After logging in successfully, you will see a list of instances available to you. Instances are actual games with defined set of users. As a facilitator, you need to create instances and add players to the game.

In figure 2.3, you will also notice the logout button. This button will be available in every subsequent page.

Figure 2.3: Facilitator Home Page

ADDING USERS TO THE GAME

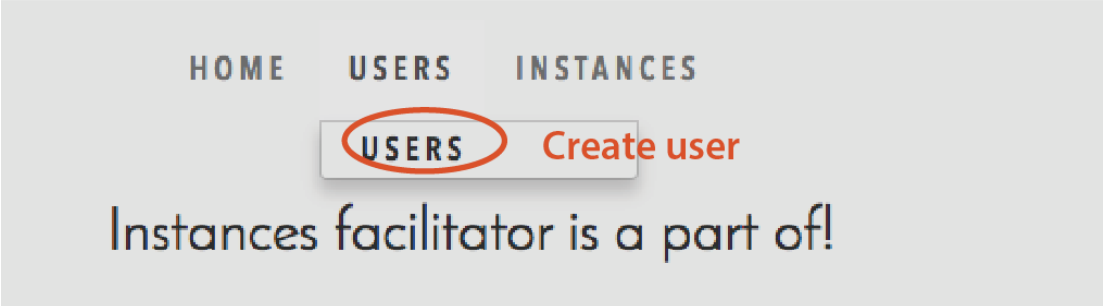

Figure 2.4: User Navigation Panel

Click on the USERS button the navigation bar as shown in figure 2.4. This will lead you to the page shown in figure 2.5. On this page, you will see a create user form on the left (as shown in figure 2.6) and the list of users on the right (as shown in figure 2.7).

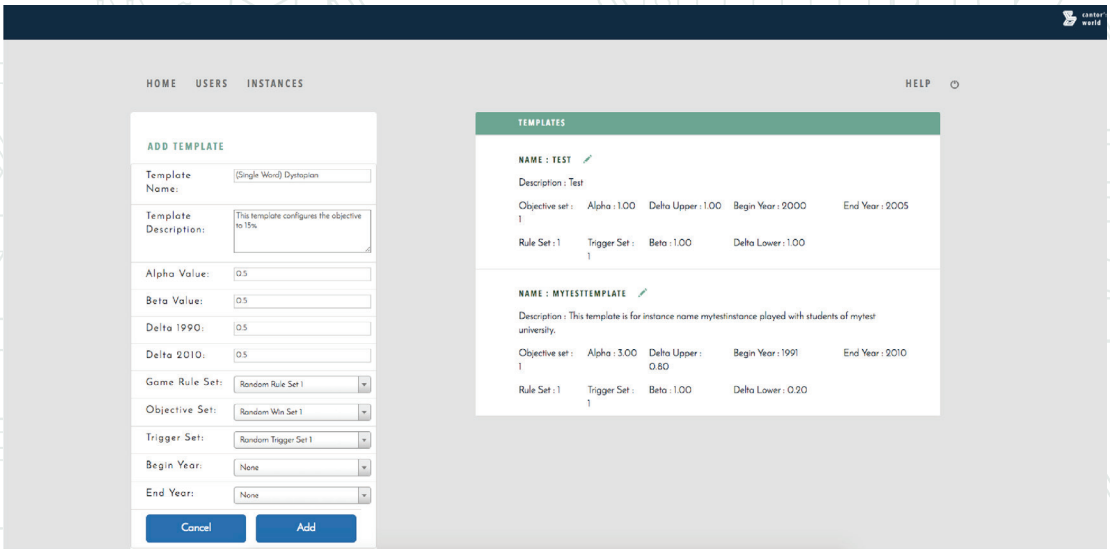

Figure 2.5: User Details Page

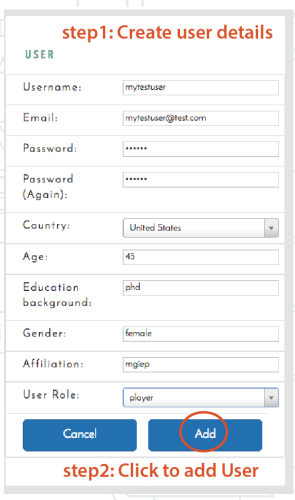

Figure 2.6: Create User Form

Enter new user details and then click on the ADD button (figure 2.6). The new player will now show up in the list , as shown in figure 2.8. You may edit user details by clicking on the pencil button (figure 2.5), making changes, and then clicking on the EDIT button. If you would like to add a new user at this point, please click on the cancel button.

Figure 2.7: List of Users

Figure 2.8: Your new user

ADDING A TEMPLATE TO THE GAME

A new template can be created by clicking on the TEMPLATE button on the navigation bar (figure2.9). This leads the facilitator to the TEMAPLTE page (figure 2.10) with a button to create template. The list of templates is visible on the right, as shown in figure 2.12.

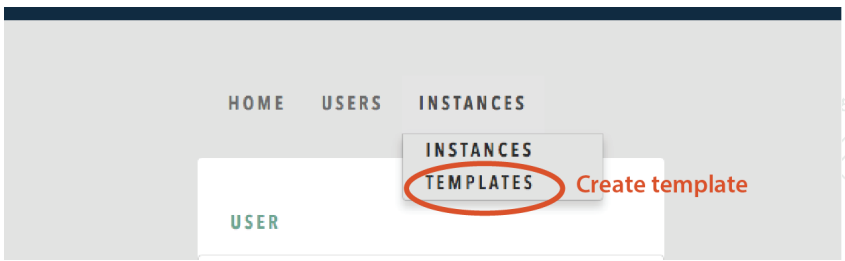

Figure 2.9: Template Navigation Panel

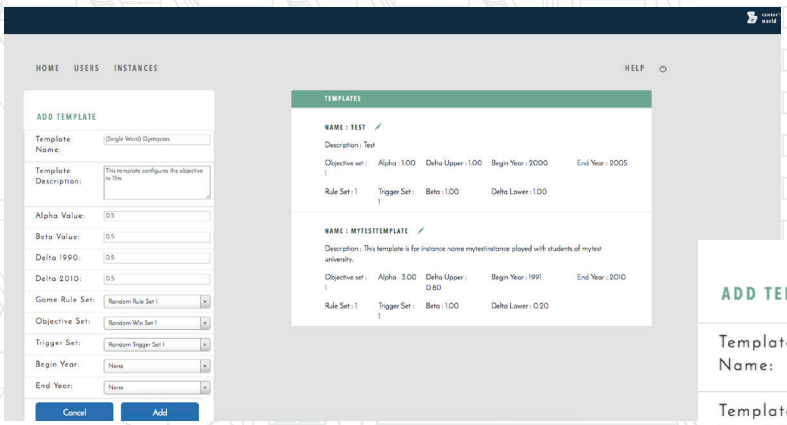

Figure 2.10: Template Details Page

The various parameters as shown in the figure 2.11 are as shown in the table 2.4. Please contact the administrator for further clarifications.

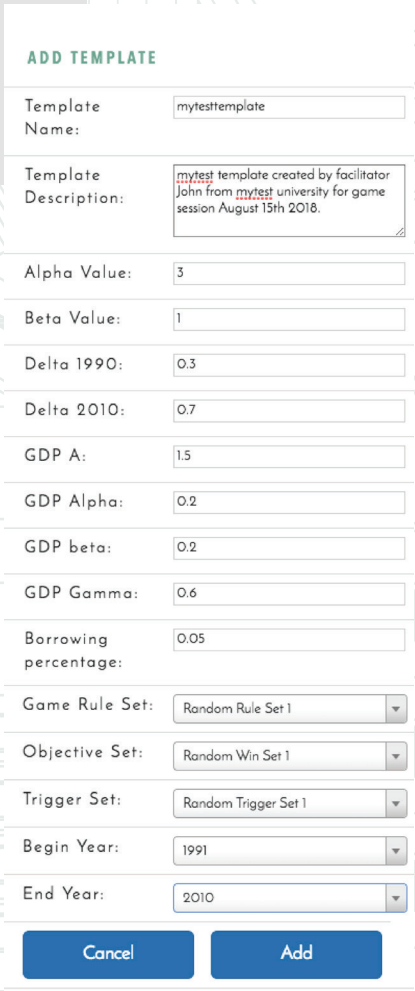

Figure 2.11: Create Template Form

Table 2.1: Guidelines for the Template Form

NAME	DESCRIPTION	GUIDELINES
Template Name	Ensure the name follows the naming convention of facilitator name and respective university in one word	john_mytestuniversity
Template Description	Provide a description for your template	Batch 20 1 8 in mytestuniv under John
Alpha Value	Control Value to give preference to policy implementations over SDG priorities. (Alpha + Beta = 1)	0.3 (Where Beta value is 0.7)
Beta Value	Control Value to give preference to SDG priorities over policy implementations. (Alpha + Beta = 1)	0.7 (Where Alpha value is 0.3)
Delta 1990	Deviation of action variables from the real world values where delta can range between 0 and 1	0.5
Delta 2010	Deviation of action variables from the real world values where delta can range between 0 and 1	0.5
GDP Alpha	Power function over Produced Capital while calculating GDP. (GDP alpha + GDP beta + GDP gamma = 1)	0.3
GDP Beta	Power function over Natural Capital while calculating GDP. (GDP alpha + GDP beta + GDP gamma = 1)	0.3
GDP Gamma	Power function over Human Capital while calculating GDP. (GDP alpha + GDP beta + GDP gamma = 1)	0.4
Borrowing Percentage	Percentage of borrowing allowed for a player. (0 <= borrowing percentage <= 0.1)	0.05
Game Rule Set	Sample set of Rules	Random Rule Set 1
Objective Set	Sample set of objectives	Random Win Set 1
Trigger Set	Sample set of triggers	Random Trigger Set 1
Begin Year	1991 <= begin year < end year <= 2010	1991
End Year	1991 <= begin year < end year <= 2010	2010

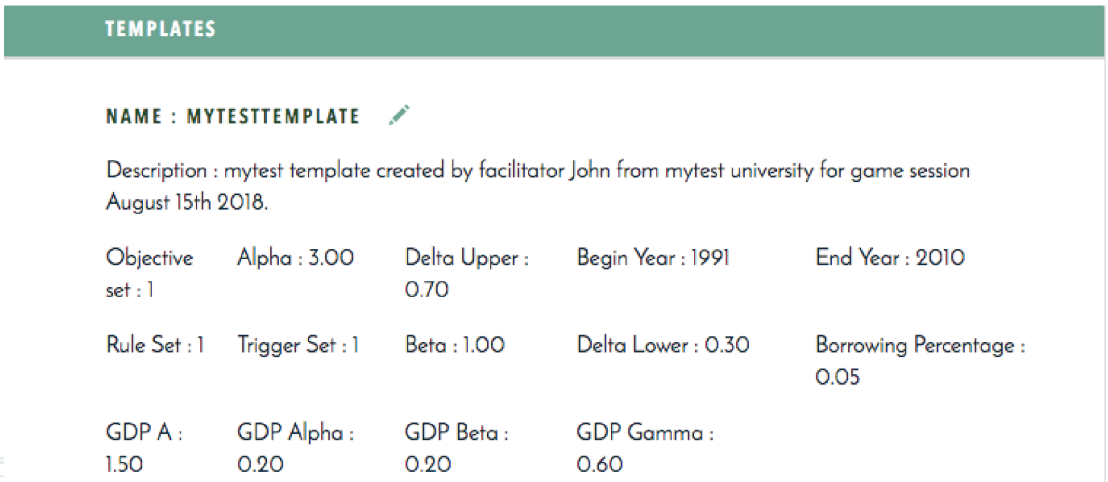

Figure 2.12: List of Templates

ADDING AN INSTANCE TO THE GAME

Now that a temaple is create, you need to add an instance for the players. Click on the TEMPLATE button in the navigation panel, as shown in figure 2.13.

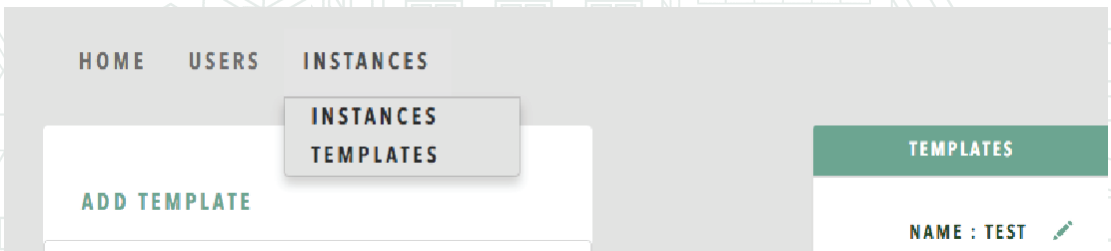

Figure 2.13: Click on Instances on the Navbar

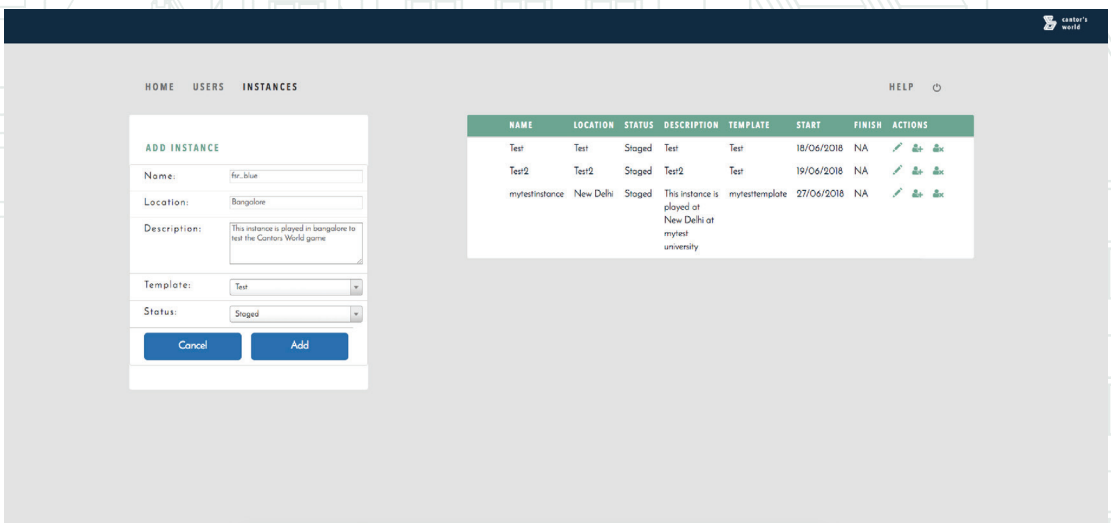

Figure 2.14: Instances Page

The page shown in figure 2.14 is where you have the 'create instance form' on the left of figure 2.15 and the list of instances being displayed on the right, as shown in figure 2.16.

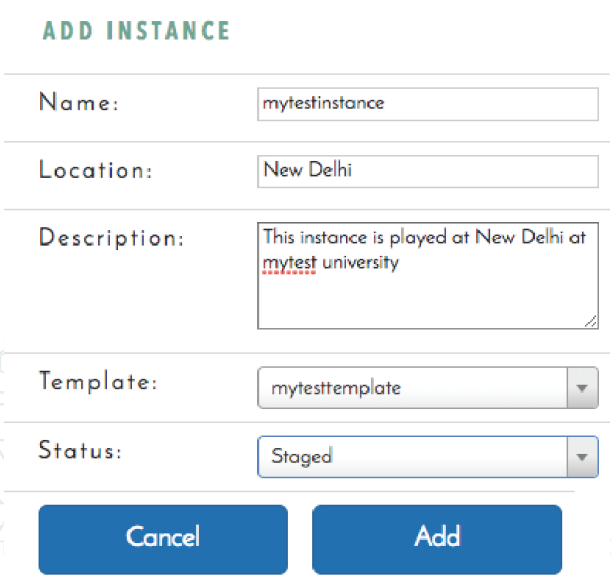

Figure 2.15: Create Instance Form

Select the template you have created and leave the status as staged. After the administrator has reviewed your instance, it will be made live.

NAME	LOCATION	STATUS	DESCRIPTION	TEMPLATE	START	FINISH	ACTIONS
Test	Test	Staged	Test	Test	18/06/2018	NA	
Test2	Test2	Staged	Test2	Test	19/06/2018	NA	
mytestinstance	New Delhi	Staged	This instance is played at New Delhi at mytest university	mytesttemplate	27/06/2018	NA	

Add players to instance

Remove players from instance

Figure 2.16: Create Instance Form

Adding and Removing Users to the Game

After creating an instance, you need to add users to it. From figure 2.16, click on the button enclosed in a red circle to add players and click on the button enclosed in blue circle to remove players from the instance.

Figure 2.17: Adding Users to an Instance

Once you click on the button to add users to the instance, it appears on the left, as shown in figure 2.17. Type or select the usernames to be added to the instance. **Contact the administrator to add you to the instance created.**

Once the administrator has added you to the instance your homepage will look like figure 2.18.

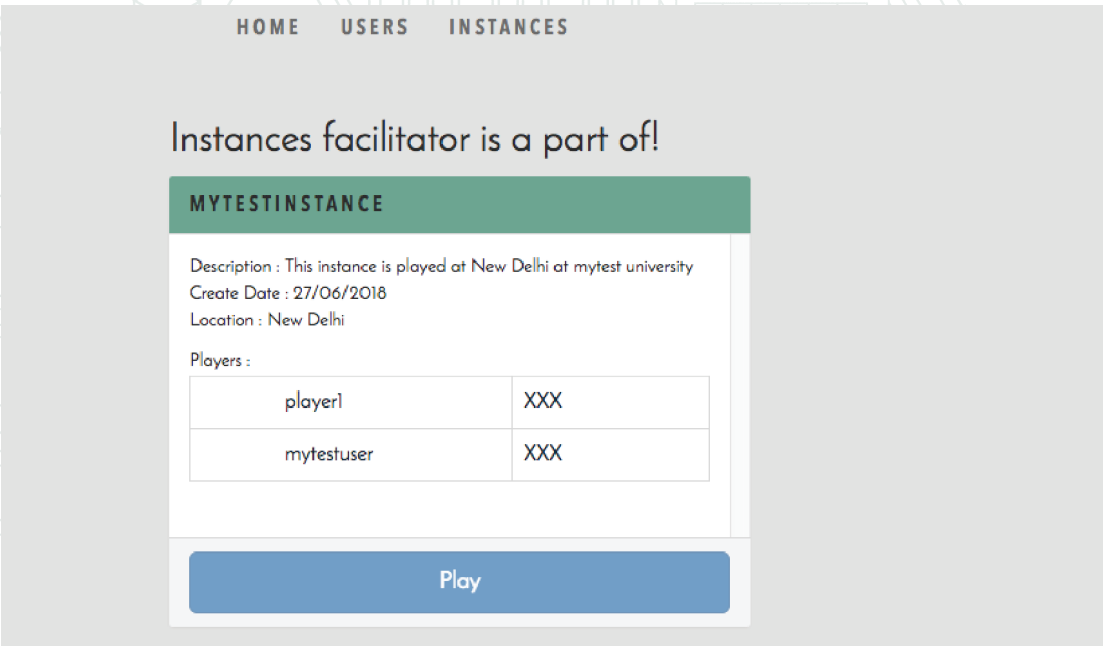

Figure 2.18: Viewing Users in an Instance

Now your players will notice this new addition on their screens as well, and you can instruct them to choose a country and set their priorities. You will also notice that the Play button has been disabled for you. This is done to ensure that all players choose their country and only then can you start playing. Each player has XXX marked next to them to indicate the country chosen by them. XXX indicates To be Decided. Each value gets updated after refreshing the screen.

If you need to remove a player from the instance, you can do so by clicking on the button enclosed in a blue circle to remove players from the instance as shown in 2.16.

If you were to remove player1 as shown in figure 2.18, navigate to the instance page and click on remove players from the instance and follow the procedure as indicated in figure 2.19.

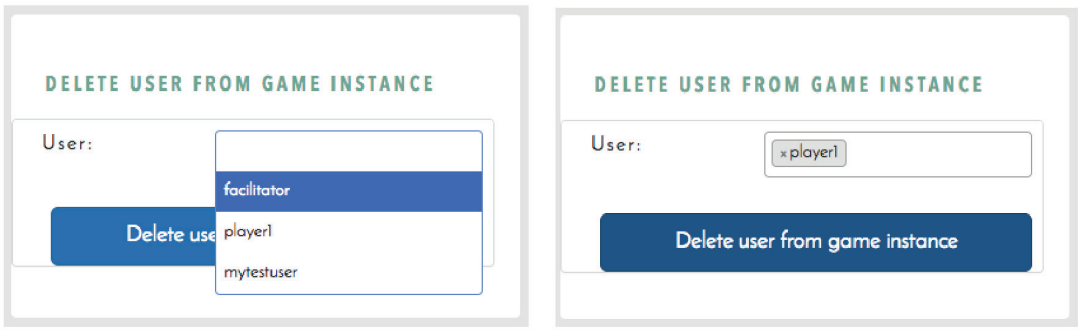

Figure 2.19: Deleting a user from an Instance

After deleting a user, your homepage will now look like figure 2.20. After all players have chosen their country, the PLAY button will be enabled. You may now click on PLAY and proceed.

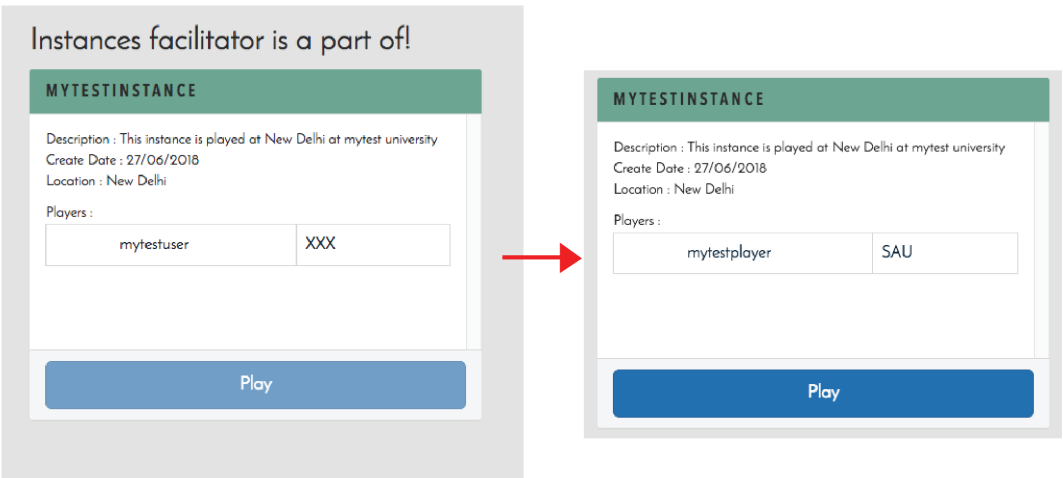

Figure 2.20: Player Statuses after they've chosen a country

PLAYING THE GAME

MONITORING PLAYER SUBMIT STATUSES

Welcome to your instance's Gameplay page as shown in figure 3.1. You can click on the Next Round button after all the players have submitted their policies for the year. When the game is about to end the button text will change to End Game, the game ends after this button has been clicked.

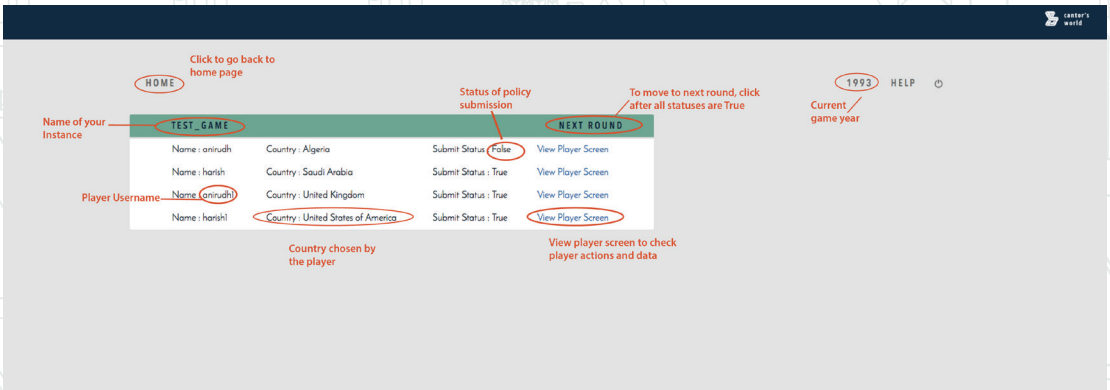

Figure 3.1: Gameplay screen of Facilitator

Clicking on the button "View Player Screen" takes you to the player page. You will not be able to implement or submit policies on behalf of the player but you can view all data generated by the player.

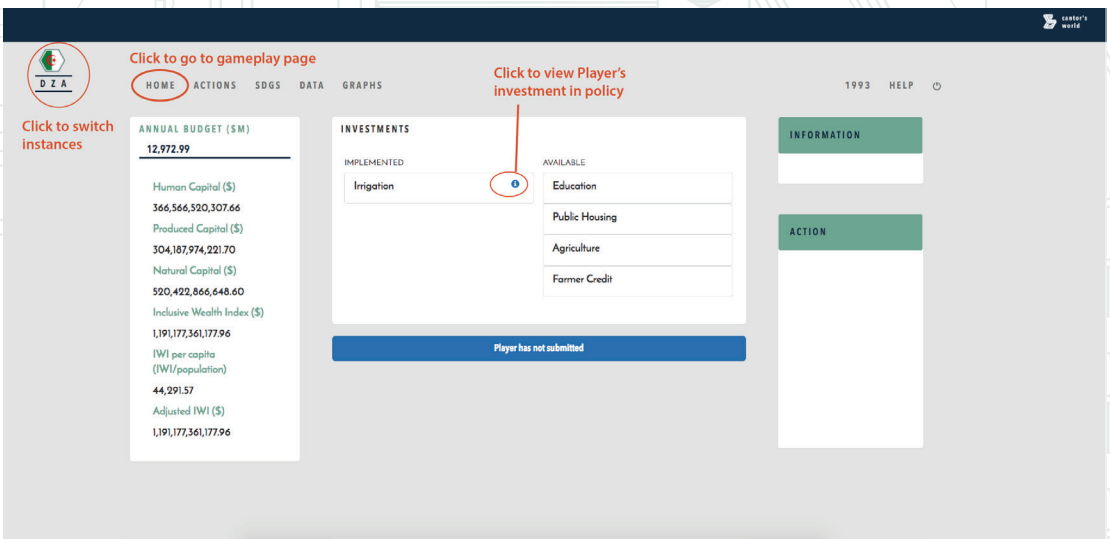

Figure 3.2: Gameplay screen of Facilitator

After the information icon has been clicked to view the player's policy investment, the panels to the right will be populated with information as shown in figure 3.3.

You can view the gameplay page by clicking on the Home button as shown in figure 3.2. You can check the player's progress on SDGs by clicking on the SDG button on the navigation page.

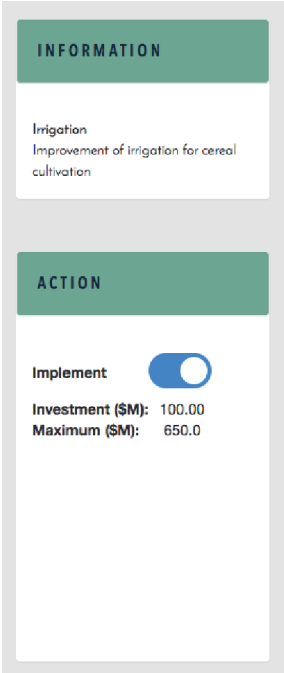

Figure 3.3: View player's policy investments

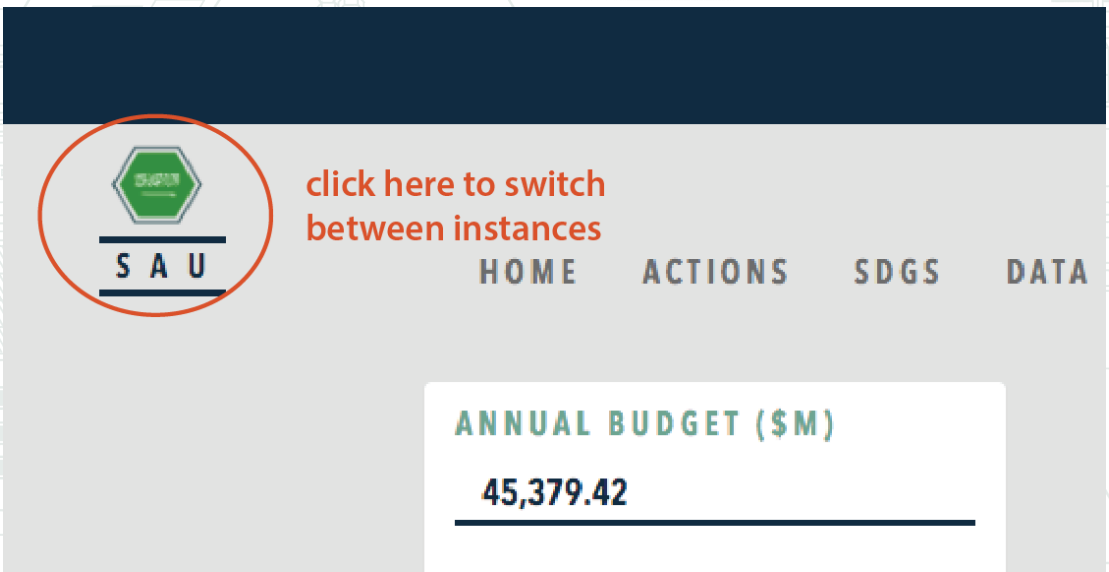

Figure 3.4: Click on the country flag to switch instances

Viewing Player Data

To view the Data of the player's country, click on the Data tab on the navigation panel, which leads to a screen as shown in the figure 3.5. You can now select the years available to you and click on the generate button.

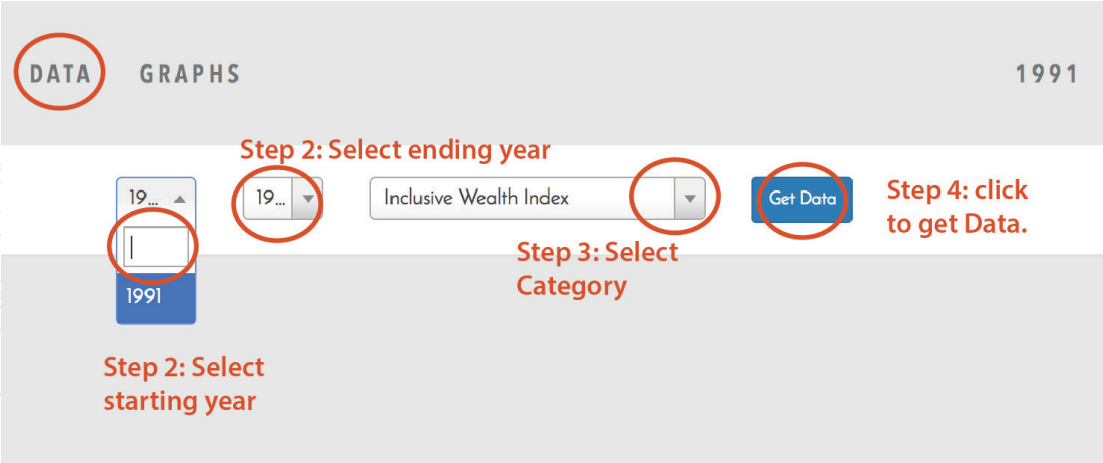

Figure 3.5: Data form on data page

The indicator data is from the years and capital chosen and the investment data is based on the policy investments made. You will also be shown the various policies implemented by the player in different years.

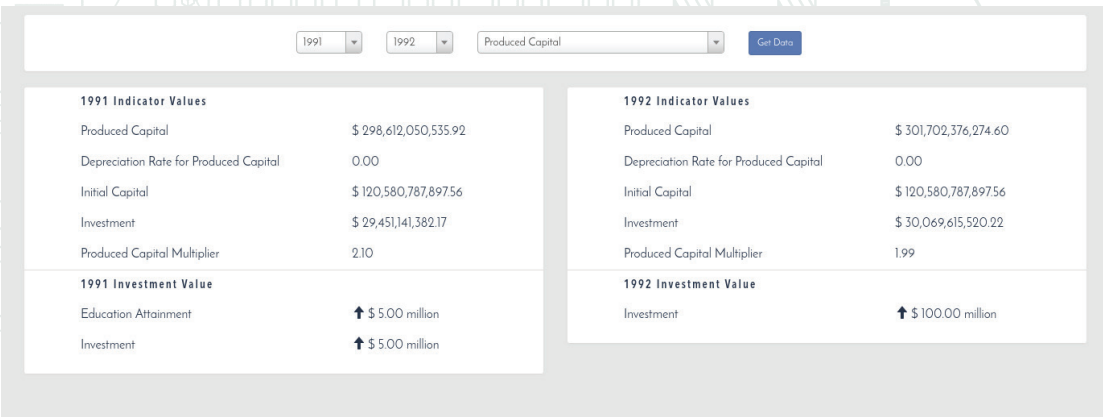

Figure 3.6: Data form on data page

You can check the player's progress on SDGs by clicking on the SDG button on the navigation page.

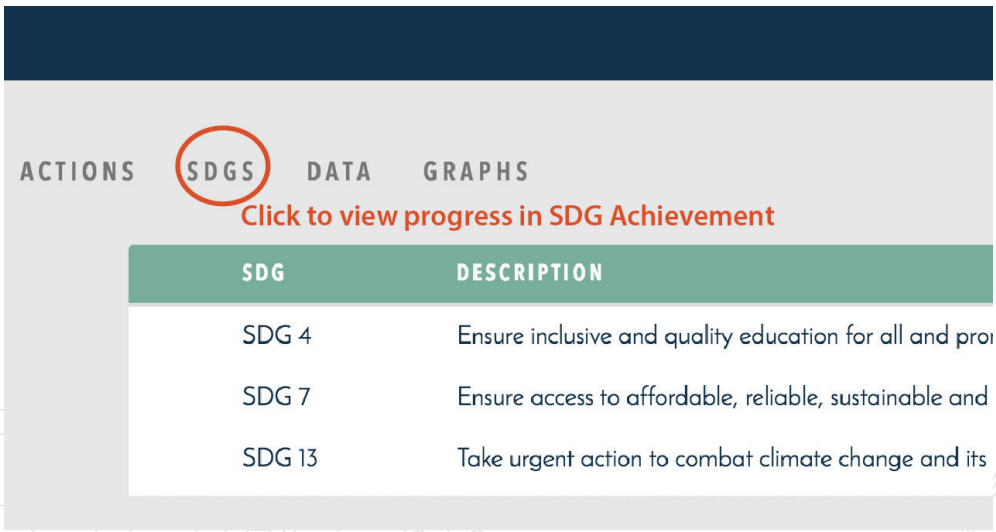

Figure 3.7: SDG page

Viewing Graphs

To generate the graphs for the various capitals and indicator data, click on the graphs button on the navigation panel. This leads you to a screen as shown in the figure 3.8. Follow Steps 1-3.

You will be shown three sets of graphs, the first is a comparison of the two indicators chosen and the other two graphs display data over a time period. The legend is available on all the graphs and one set of lines is a plot of the real world data and the other is the data of the path your country has taken.

If you wish to view only one indicator, set both to view only one indicator set both characters as the same indicator.

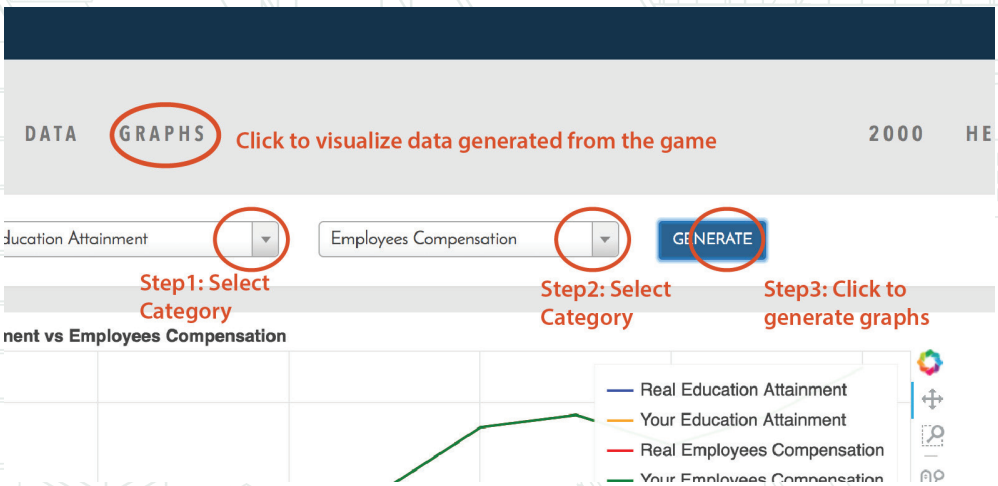

Figure 3.8: Graph page

GETTING HELP

In case of receiving any Server Errors, please Refresh the page. In case the problem persists or you need to escalate an issue, then please contact your administrator with a screenshot of the issue.

BIBLIOGRAPHY

[Dasgupta, 2009] Dasgupta, P. (2009). The welfare economic theory of green national accounts. *Environmental and Resource Economics*, 42(1):3.

Inclusive Wealth Report 2012 – Measuring Progress Toward Sustainability. International Journal of Sustainability in Higher Education (Vol. 13). Cambridge University Press.

[Oetiker et al., 2001] Oetiker, T., Parti, H., Hyna, I., and Schlegl, E. (2001). The not so short introduction to latex 2e. Technical report, ETH Zurich.

[Stiglitz et al., 2010] Stiglitz, J. E., Sen, A., and Fitoussi, J.-P. (2010). *Mismea-suring our lives: Why GDP doesn 't add up*. The New Press.

United Nations Educational, Scientific and Cultural Organization

Mahatma Gandhi Institute of Education for Peace and Sustainable Development

mgiep.unesco.org facebook.com/mgiep

twitter.com/unesco_mgiep

United Nations
Educational, Scientific and
Cultural Organization

Mahatma Gandhi Institute
of Education for Peace
and Sustainable Development

UNESCO MGIEP
35 Ferozshah Road, ICSSR Building, 1st Floor, New Delhi 110001
Phone +91 11-23072356-60
E: mgiep@unesco.org
www.mgiep.unesco.org