



ClimACT



Biodiversity & Climate Change



RULES OF THE GAME

ROLE PLAY

PARTNERS

A role play game on biodiversity and climate change

For the transition to Low Carbon Schools.

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This game has been edited and printed by the municipality of La Rochelle



This role play game was created by Bruno Pinto



In this game, students represent different characters to discuss a theme related to the conservation of biodiversity and climate change.

There are four possible themes :

- wind energy,
- native forest,
- wildfire and water resources.

The activity consists of simulating a public discussion in a fictitious Town Hall from the state of Terra Nova, in which there are two options under discussion. Each character is represented by one or two students, totaling six to eight characters, with a moderator of the debate. At the end of the discussion, students participate in a joint reflection about the debate. The total duration for this activity is 120 minutes.



INSTRUCTIONS

Players

1 This game is recommended for youngsters between 13 and 17 years of old. There is 7 to 9 character in each debate including the moderator. Each character can be played by one or two students.

2

Preparation (duration: 30 minutes)

• The teacher decides if there will be six, seven or eight characters in the debate, and if students will have to pair up to play one character. Students without a character should be attentive and take notes in order, to write an article on debate and/or and describe what happened during the game. Depending of the number of students, the group can be divided in two to make two separate debates. Students will be assigned the characters they will play according to the teacher's criteria (at random, by choice of teacher, choice of students, etc.).

3

• The teachers should make a brief introduction to the topic of biodiversity conservation and climate change, as well as the specific topic under discussion.

4

• The teacher should explain to the students how the game works and the different phases.

5

6

7

• Students receive the «character profile» card and the «summary and bibliography» sheet. It is recommended that students do not read the characters descriptions of other players.

• Students should have the opportunity to search for additional information. Before the debate, the teacher can clarify the students' doubts about the topic under discussion.



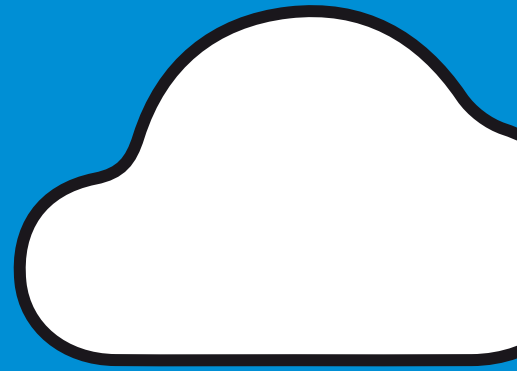
The game (total duration : 90 minutes)

Before the debate (duration: 10 minutes)

- Prepare the room for a round-table identifying the players' places using sheets of paper with the names of the characters.
- Inform students that they should only speak when the moderator gives them permission, and other rules that you think are important to the debate.

The debate (duration: 50 minutes)

1. The teacher should start the session in the role of moderator, explaining briefly the debate in question and reading the letter from the President of the Association of Municipalities.
2. The characters should interact by making brief interventions, and the moderator should conduct the debate in an open, inclusive and interesting way.
3. The character «journalist» is an observer who comments and/or asks questions throughout the debate.
4. Before finishing, the moderator sums-up the results of the debate, thanks all the participants and closes the session.



The joint reflection (duration: 20 minutes)

The moderator shall explain clearly the importance of this part of the activity. The reflection has three main phases: description, analysis and application.

Description :

This part should help participants distance themselves from the game experience, leading them away from the characters they played and to free themselves from the tension of the discussion. The moderator may ask the players: «How did you feel?»; «What were the main successes and frustrations during the game? ». The moderator should not pressure players to comment, criticise or devalue their feelings.

Analysis :

It is intended that the participants share their perceptions, observations and thoughts during the game, so that there is an understanding and integration of the different experiences. The moderator may ask the players: «What happened during the game?»; «What were the main challenges and how did you try to overcome them?»; «How was the debate carried out?»; «Is there any player that dominated the debate? Why?».

Application of the knowledge acquired:

Players are expected to talk about what they have learnt during the game and to apply it to the reality. The moderator may ask the participants: «What have you learnt during the game?»; «How can you apply this knowledge in the future?»; «Is it important to be well informed when taking part in a debate?»; «Is it worth thinking about climate change and the environmental issue ? Why?». This phase ends the activity. The game can be repeated with another theme.

SUMMARY OF THE DIFFERENT PHASES OF THE GAME

1) PREPARATION (30 min)

- Introduction to biodiversity and climate change, the theme chosen for the debate.
- Selection of characters, distribution of information to students (character cards, summary and bibliography), and game scheduling.
- Clarification about the theme of the game before the debate.

2) THE GAME (90 min, includes 10 min tolerance)

- Before the debate (10 min): preparation and positioning of the characters in the room and explanation of the rules.
- Debate (50 min), in which the moderator ensures that everyone participates.

3) THE JOINT REFLECTION (20 min)

- «Description» to distance players from the tension of the game,
- «Analysis» of what happened during the debate
- «Application» of what they have learned into reality

SCENARIO /1

WIND ENERGY

Hyrule is a mountainous county of 23 000 inhabitants, where agriculture, forestry, stone quarries and some small industries drive the economy. Recently, there has been a significant growth of the tourism sector associated with thermal springs, natural landscapes, caves and prehistoric dinosaur footprints. The public discussion in the City Hall of Altara, a town of about 10,000 inhabitants, aims to choose between two plots of land belonging to the City Hall for the installation of a wind farm.

Option 1: Ortega is the preferred location for wind energy production due to the higher average wind speed. But this area is also extensively used by tourists who hike there and possesses natural habitats such as a colony of bats. In this context, there are companies linked to tourism, environmentalists and local people who are against this possibility.

Option 2: Ticor Valley has no significant natural resources, but has a lower average wind speed and greater wind instability, which makes this wind farm less cost effective. The lease of any of these tracts of lands will economically benefit the City Council.

Characters :



- **Moderator :**

Should avoid expressing personal opinions on the subject under discussion; ensure that all participants express themselves freely; should promote a constructive exchange of ideas; should encourage debate, but let each one draw their own conclusions. He should act as if it were a public discussion, pretending there is an imaginary audience attending the debate.

• **Mayor :**

She is in favour of option 1 (Ortega). As a responsible and competent politician, she is trying to find the best possible solution for this region, as she wants to be reelected in the next elections. From an economic point of view, her house would rise in value if the Ortega option won, so she is more inclined to favour this option. She thinks that the impact on touristic activities and natural resources caused by this wind farm may be offset, but she is willing to change her mind according to the population's reactions.



• **Specialist in wind energy :**

She is in favour of option 1 (Ortega). She was hired by the association of Terra Nova's municipalities to make a technical study, considering the two possibilities of installing a wind farm in the municipality of Altara. In her expert opinion, Ortega is the one that presents the best conditions for the production of wind energy by the highest average speed (10 m/s) and more constant wind. In Ticor Valley, the average wind speed is lower (7 m/s) and variable, but in any case these conditions are sufficient to ensure that this wind farm is installed. This area also has the disadvantage of being further away from the power distribution network. This incurs higher costs, which makes this option less profitable. She calculated that the investment made will only be profitable after 8 years in Ortega and 12 years in Ticor Valley.

• **Local inhabitant 1 :**

Is in favour of option 1 (Ortega). He works for a building material company which would increase sales if they built a wind farm. In recent years, the company has been stable, but without growth, thus this project offers a good opportunity to invest in renewable energy. He prefers the location of Ortega, as being the most profitable option.

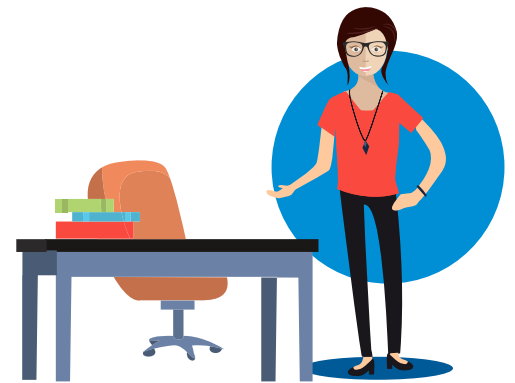


• **Local inhabitant 2 :**

In favour of option 2 (Ticor Valley). She moved about a year ago from the city center to a more rural area where she has relatives. It is also a beautiful and peaceful place to live in. The possibility of building a wind farm in Ortega has become a concern because it is just a few kilometres from her home and could potentially cause a lot of noise due to the wind turbines, especially at night. This opinion is shared by most of her neighbours, who also feel that the project might have negative impacts on tourism and on the economy of the area.

• **Promoter of wind farm :**

She is in favour of option 1 (Ortega). She works for the company that will promote the construction and management of the wind farm. She believes that it will be important for the local development of the region. He prefers the Ortega option, because it presents better conditions for the production of energy. She will take on board all the recommended compensation measures from the environmental impact study for either option. If the Ortega option is chosen, it is envisaged that a ran down area will be revitalised so that it can be used for nature tourism as well as a local biodiversity center. This will compensate for the loss of visitors and natural resources in this area. In addition, she offers to pay a higher rent to the Town Hall if the Ortega option is successful. She is against the Ticor Valley location of the park because it is less profitable, nevertheless she is willing to move forward with the project, if this option is chosen.



• **Representative of the Student Association :**

He is in favour of option 2 (Ticor Valley). Besides having lived in this region all his life and having plans to stay here in the future, he believes that young people are crucial to a discussion like this, as they will live with the consequences of the its decisions. He prefers the Ticor Valley option because it has less environmental and touristic impacts, and thinks that it ´s better to find out other ways to reduce the consumption of energy instead of increasing the production of energy. Considers that there is much to be done in the region to improve energy efficiency, and therefore believes that it ´s important to raise people ´s awareness on this issue (Example: installation of LED lamps and greater insulation of homes). He also considers important that the City Council support measures such as the installation of solar panels in houses under their control.



• **Representative of the Tourist Board :**

She is in favour of option 2 (Ticor Valley).

As the Ortega area in question is one of the most frequented by tourists visiting the region, the association which she represents is against the location of the wind farm in Ortega. Besides the negative visual impact of the wind turbines, some of them would be very close to the trails used by tourists, which would probably reduce the number of visitors in that area. Instead, she thinks that the number of tourists should be increased by improving the road to Ortega and by remodeling the information panels on natural and cultural aspects of this area.

She also thinks that the installation of the wind farm should take place in Ticor Valley or in any other area that does not prejudice tourism.





- **Representative of an Environmental Organisation :**

She is in favour of option 2 (Ticor Valley). She firmly believes in the growth of wind energy, which causes lower environmental impact. However, she thinks that Ortega is not the best location for this project from both environmental and touristic point of view. According to the environmental impact studies, the construction in Ortega would have negative effects on the bat colony that is located in that area. Although this study has pointed out environmental compensation measures, she considers that the best location will be Ticor Valley, where the environmental impact is lower. She also believes that energy efficiency should be improved. This means that the best option would be reducing energy consumption by using LED light bulbs, and focusing on thermal insulation of homes and installation of solar panels.

- **Journalist :**

He works in the regional newspaper and collaborates in a national newspaper. He is interested in writing about this public discussion for the both publications. He is an independent observer who knows the issues under discussion very well. His role is to ask the participants interesting and pertinent questions.



SCENARIO /2

NATIVE FOREST

Santa Clara is an inland municipality of some 56,000 inhabitants. In recent years this agricultural and cattle raising area has experienced a great development of the dairy industry. There is also a pine and eucalyptus processing plant, and as result of the popularity of rural tourism, there has been an increase in construction and the sale of small farms. The Santa Clara City Hall, a city of about 35,000 inhabitants, possesses an undeveloped tract land of about ten hectares on the outskirts of the city, which has a sparse and degraded oak forest. The public discussion, that will take place now, aims to decide how to use this land, which currently has problems of erosion in particular areas.

Option 1: to recover and increase the native forest, and create a picnic zone and different walking routes.

Option 2: construction of urban-tourist projects, kart track or other such infrastructures.

Characters :



• Moderator :

You should not express personal opinions about the subject under discussion. You should ensure that all participants have a similar right of expression. You should promote a constructive exchange of ideas. You should encourage debate, but let each one draw their own conclusions. Everybody should act as if it were a public discussion and there is an imaginary audience attending the debate.

- **Mayor :**

He is in favour of option 1 (forest recovery). As a responsible and competent politician, he is trying to find the best solutions for this region. He knows that this land is coveted by real estate agents and others interested in its urbanisation. He also knows that there is no green area near the city. He thinks this solution is preferred by the inhabitants of Santa Clara, who are the majority of people who vote.



- **Director of real estate company :**

She is in favour of option 2 (urbanization of land). She is the director of a local company (with about 30 employees), responsible for the construction of villas, urbanizations and small touristic projects in the region. She is against the forest project and hopes to convince other inhabitants of this region to urbanise. Increasing construction and thus the economic development of the region.

- **Tourism company representative :**

Is in favour of option 1 (forest recovery). She moved two years ago to this region, to create a rural tourism company buying a farm where her guests enjoy the traditional local cuisine and participate in activities related to agriculture and cattle raising, walking, boating, horse riding and cycling. The business has been growing and this project would be a good way to further develop rural tourism.



- **Representative of environment organisation :**

Is in favour of option 1 (forest recovery). The environmental organization is responsible for a project called «Sustainable Forest», whose main objective is to increase the area of native forests at national level. Forests promote biodiversity and have important functions such as recycling of water and air, as well as being habitats for species that are important for human activities. If this project is approved, it promises to support the cultivation of native species produced in nurseries from local specimens and create trails for rural tourism or other outdoor activities.

• **Local inhabitant 1 :**

Is in favour of option 2 (urbanization of land). He thinks that the increased development in recent years of this region has not been due only to tourism, but also and more importantly because of the construction of new houses.

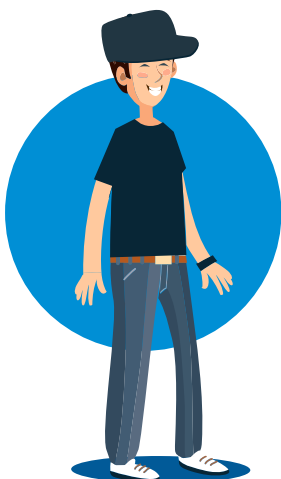


• **Local inhabitant 2 :**

Is in favour of option 1 (forest recovery). She works as a lawyer in the city of Santa Clara and prefers this because it promotes outdoor activities. Being the only projects linking nature to the city, it would certainly improve the quality of life of the inhabitants.

• **Representative of the wood industry :**

He is in favour of option 2 (urbanization of land). His business creates and manages profitable timber forests using eucalyptus or pine trees. He is against the forest project because urbanization will bring greater development and employment to the region, that can be profitable for the wood industry.



• **President of the karting association :**

He is in favour of option 2 (urbanization of land). In addition to the construction of houses, he thinks that the construction of a kart track in this area is feasible. For years there has been a dialogue between the association and the City Council on this issue, as the nearest kart track is about 80 kilometers away. This option would bring growth and an increase in economic activity for motorised sports in the region and could lead to the creation of new businesses and jobs related to karting.

- **Journalist :**

He/she works in the regional newspaper and is a newspaper contributor. He is interested in writing about this public discussion for both publications. He is an independent observer, who knows the issues under discussion and whose role is to ask questions throughout the debate on this case.



SCENARIO /3

FOREST FIRES

General description: The majority of Santana's inhabitants work in forestry production and livestock farming, with agriculture and tourism being of lesser importance. This county has a slightly declining population of about 16,000 inhabitants with the mainstay of their economy being the meat and wood processing industries. In recent years, there has been an increase in forest fires and the resultant devastation of the area, which has led a group of climate change experts to study measures to mitigate this problem. Public discussion organised by the Municipality of Santana, a village of about 5,500 inhabitants, aims to choose between two different options to reduce the risk of forest fires in the county. As there is a lack of financial resources the people of Santana can only have one of the following two options.

Option 1 : strengthening the means of fighting fires available in the region.

Option 2 : reinforcement of fire prevention.

Characters :



- **Moderator :**

You should not express personal opinions about the subject under discussion. You should ensure that all participants have a similar right of expression. You should promote a constructive exchange of ideas. You should encourage debate, but let each one draw their conclusions. Everybody should act as if it were a public discussion with an imaginary audience attending the debate.

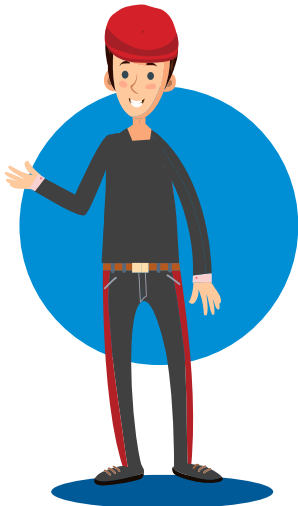
- **Mayor :**

She is in favour of option 2 (prevention). As a responsible and competent politician, he is trying to find the best solutions for this region, with an interest in being reelected in the next elections. In her opinion, the reduction of the rural population of the county of Santana is having a negative impact on fire surveillance and the cleaning of weeds that normally was made by the inhabitants who lived near the forest zones. Therefore, she considers that the best option is to reinforce firefighting surveillance, as well as to take other preventive measures.



- **Consultant on forest fires :**

Is in favour of option 2 (prevention). He is the director of a company dedicated to forest management and was hired as a specialist by the Association of Municipalities of Terra Nova. According to studies that he has consulted, climate change will have, as one of its consequences, the increase in the number and extent of forest fires in the region. In his study, he concluded that there is little investment in measures to prevent forest fires in the region, which is why these measures are the best option. More specifically, he believes that it is urgent to increase the area and scope of fire surveillance and to make clear to the local population their responsibility for the cleaning of forests, burnings and other subjects related to fire prevention. He also believes that the present firefighting resources are sufficient for the needs of the region.



- **Commander of the fire company :**

Is in favour of option 1 (combat). He believes that the region's firefighters should have more training and resources to fight fires. For example, it is necessary to purchase more modern vehicles to fight fires like jeeps, together with new water pumps and hoses. He explains the difficulty in reaching more isolated populations, because there are not enough resources distributed throughout the county. While recognizing the importance of prevention, he considers it is less important than strengthening the means of fighting fires.





• **Representative of environment organization :**

Is in favour of option 2 (prevention). Being a forest engineer, she thinks this idea of discussing forest fires in the region is very welcome. She also thinks that there should be more measures to prevent fires. An interesting idea is to intersperse pine and eucalyptus areas (which burn easily) with species of trees that are more resistant to fire such as oak or cork oak. She also believes that clearing more branches and scrubs as well as increasing the number and width of firebreaks (ie strips without vegetation that soften the fire) would be very beneficial. She also finds it important to focus more on fire-fighting and population-level sessions for risk areas, as recent studies show that some of the fires occur through carelessness. Finally, it is necessary to remember that not all fires are caused by human action or have a negative effect, being a natural process of the renewal of vegetation.

• **Local inhabitant 1 :**

Is in favour of option 2 (prevention). He is a respected physician in Santana and thinks the old saying «better safe than sorry» applies well to this case. Also in medicine it is better to avoid problems than try to solve them later. In addition, and since most of the region's fires happen on private land, he does not see why the taxpayers need to pay to fight these fires. In his view, these owners should manage their land much better and contribute more to fighting forest fires.

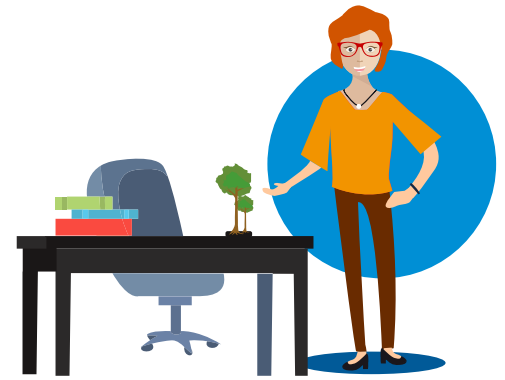


• **Local inhabitant 2 :**

Is in favour of option 1 (combat). She is a farmer and timber producer who lives in a rural area. Forest fires are increasing every year and are causing widespread losses throughout the region. Therefore, she supports the option of reinforcing fighting fires resources, in order that fire-fighters are able to attend fires which break out in the more isolated areas of the municipality.

- **Representative of forestry producers :**

Is in favour of option 1 (combat). She thinks that one of the main causes of the large number of extensive forest fires in recent years is the lack of manpower and equipment to fight forest fires. She considers that the company manages the forest quite well, but reinforcement in the fight against fires is fundamental in reducing the damage caused. Although the management of aerial resources is not controlled by the City Council, she is of the opinion that Santana should reinforce those means. She also believes that combating forest fires is in everyone's interest, since the production and processing of timber gives employment to many people in this area.



- **Representative of the forest management :**

It is in favour of option 1 (combat). In her view, forest fires are a difficult problem to solve, and therefore it is necessary to strengthen fire-fighting facilities, but also to prevent them. If there were more financial resources, fire-fighters could fight fires deep in the forest. She also thinks that the Association of Municipalities should ask for more aircraft to fight the fires in Santana.

- **Journalist :**

He works as a journalist in the regional newspaper and is a contributor to a national newspaper and is therefore interested in writing about this public discussion for both publications. He is an independent observer who knows well the issues under discussion and whose role is to ask questions throughout the debate on this case.



SCENARIO /4

WATER RESOURCES

Pedra is a municipality in the interior of the country with a slightly declining population of 18,000 inhabitants, where formerly there was traditional agriculture without irrigation. With the exploitation of aquifers in this zone, the crops are now irrigated. Therefore, irrigation, and in particular, the intensive olive grove area, has replaced the rain-fed agriculture in recent years. In addition to irrigated agriculture, there is also some industry related to agriculture, timber, cork and olive oil production, as well as some cultural tourism and livestock raising. A recent study, points to increased pressure on the most important aquifer system that caters to the largest city council, which could create a lack of water supply in the medium to long term.

On the other hand, some farmers complain that the rain-fed agriculture is less profitable and more subject to future climate change. Therefore, in this public discussion promoted by the City Council, it is necessary to make a choice about the future of agriculture in the region.

Option 1: limit the expansion of the irrigated area, but maintaining the agricultural areas that already have this type of agriculture.

Option 2: continue to allow irrigation farming to increase.

Characters :



- **Moderator :**

You should not express personal opinions about the subject under discussion. You should ensure that all participants have a similar right of expression. You should promote a constructive exchange of ideas. You should encourage debate, but let each one draw their conclusions. Everybody should act as if it were a public discussion, and there is an imaginary audience attending the debate.

• **Mayor :**

He is in favour of option 2 (increase irrigation). As a responsible and competent politician, he is trying to find the best solutions for this region, as he wants to be re-elected in the next election. He is in favour of increasing irrigation, because he believes it's important that farmers and companies linked to irrigation continue to grow in the region. Although a recent study suggests that it is better to limit the growth of irrigation to prevent problems of water shortage in the medium and long term, he believes there will be time to find other solutions in the future to the water supply issue before it becomes a problem. He also intends to solve problems of water leakage in the public water network in the city of Pedra.



• **Water resource specialist :**

Is in favour of option 1 (limit irrigation). She belongs to the group of experts contracted by the association of municipalities of Terra Nova and she is in this public discussion to give her technical geologist opinion. According to the study carried out and based on recent information, more and more water is being withdrawn from the aquifer system of Pedra, and it is likely that there will be problems of public water supply in the long term if irrigation continues at the pace or increases. This is due not only to the amount of water used but also because of the pollution of aquifers caused by this type of agriculture. In addition, the lack of water will be aggravated by predictions that temperatures will increase due to climate change. Although she predicts that there will be no short-term water problems, she argues that increasing the irrigated area will contribute to the unsustainability of agriculture in the region. She also recommends the improvement of groundwater resources monitoring in terms of quantity and quality of water by City Council technicians.



• **President of the olive growers' cooperative :**

She is in favour of option 2 (increase irrigation). She thinks it is common sense to take precautions against something that is taken for granted. But the study that is presented on the water resources to limit the irrigation in the county is only a projection. In addition, problems with water resources are pointed out only in the medium and long term. As the growth of irrigated land has contributed to the economic growth of this region, she believes that it should continue to expand. She also advocates frequent monitoring of the region's aquifer system to see if the experts' forecasts are accurate. If this happens, she thinks they can find other solutions to increase water for public supply and/or limit irrigation in a few years. With regard to rain-fed agriculture, and since warmer years may mean partial or total production losses, she considers that this type of agriculture is more vulnerable to climate change than irrigation, which seems to be why rain-fed agriculture is not the best option for the area.





• **Chairman of the Farmers' Association :**

He is in favour of option 2 (increase irrigation). As an experienced farmer on issues related to water resources, he is against limitation of irrigation in the region because he considers that much can be done to reduce the current water consumption of irrigated agriculture. For example, he recommends training for farmers and agricultural technicians, so that there is better agricultural management. The introduction of more efficient irrigation systems, reducing waste of water, and the use of good agricultural practices may also contribute to save water and improve soil conservation. In addition, he is planning to create a web-page maintained by the Regional Farmers Association, which will support the area of irrigation technology and with important information such as an online documentary archive and an Information Centre. He also points out that even rain-fed agriculture is dependent on climatic conditions and, as such, should not be imposed on farmers. For this reason, he believes that a compensation scheme for loss of production should be established.

• **Representative of the environment organization :**

She is in favour of option 1 (limit the irrigation). As a university professor of biology and a member of a non-governmental environmental organization, she finds the option of imposing limits on irrigated agriculture better. In addition to issues related to small and medium-sized enterprises, most of the species associated with rivers and streams in the region depend partly on groundwater, especially during the dry season. These aquatic ecosystems are relatively well preserved and have two species of rare freshwater fish so it is crucial to keep the groundwater free from pollutants. A major focus on the promotion of traditional products, rural tourism and nature and the technical capacity of farmers to tackle water shortage problems increases the benefits of rain-fed agriculture.



• **Local inhabitant 1 :**

He is in favour of option 1 (limit of irrigation). He lives in Pedra where he works as a pharmacist and has heard of more water problems in the region. He understands that irrigation has been responsible for a growth in the region's economy, but if intensive olive groves jeopardise the public water supply in the future, he believes that measures will have to be taken to prevent this.

- **Local inhabitant 2 :**

Is in favour of option 2 (increase irrigation). She works in an irrigation products company in the region, which has grown due to the increase of irrigated agriculture. While she understands water concerns, she believes that further solutions should be sought in the future so that these activities can continue to thrive in the region as they have given work to many local people. In any case, the decision to limit irrigation will not end her business because there will always be a need for maintenance of irrigation material in areas currently practicing irrigated agriculture.



- **Representative of the public water company :**

Is in favour of option 1 (limit irrigation). There are water loss problems in public water supply networks that have not yet been resolved due to the high cost of renewing the network. However, it is expected that this work will start very briefly, which will simply an estimated saving of 10 to 15% in the water consumption. This reduction is important, but it may not be sufficient due to the increase of irrigated agriculture. Therefore, it is best to take precautions in the short term before the problem worsens and makes public water supply more difficult.

- **Journalist :**

He works as a journalist in the regional newspaper and he is a newspaper contributor. He is interested in writing about this public discussion for the two publications. He is an independent observer who knows well the issues under discussion and whose role is to ask questions throughout the debate on this case.



