

JAF04 Unit 4 The Aral Sea

Task 1 Troubleshooting

Are you encountering any problems in your life now (minor or major, acute or long-term...)? Describe your problem in a sentence or two and then consult 3 of your colleagues about it. Whose advice did you find most helpful or constructive?

Task 2 The Language of Problem–Solution

Here is a list of problem-solution markers that you will find in academic texts. Which of them are problem markers and which are solution markers?

concern *obstacle* *remedy* *solution* *setback* *deal with*
relief *threat* *challenge* *deficiency* *response* *overcome*
excess *shortage* *address* *cope with* *issue*

Task 3 Skill practice

In the following sentences, circle the problem markers and underline the problem.

1. The project to land an American astronaut on the moon experienced a serious setback when three astronauts were killed in a training exercise in 1967.
2. Many Americans, even college students, live with the burden of heavy debt because they have an easy access to credit cards, but little or no experience in using them wisely.
3. How to strengthen the economy and at the same time protect the environment is a dilemma that all countries will have to recognise.
4. A dangerous global crisis arose in 1962 when the United States determined that the Soviet Union was placing nuclear missiles in Cuba, only 90 miles off the coast of Florida.
5. The difficulty of learning technical vocabulary is one that both native and non-native speakers of English have in common in their university classes.

Task 4 Study the map of the Aral Sea and discuss what might have caused the change.



(Source: <http://www.aolnews.com/2010/04/07/out-of-a-dying-sea-small-victories-begin-to-surface/>)

Reading

Task 5 In the chart below, formulate a question for each paragraph that is missing one. You should read its opening sentence and formulate a question that you expect the paragraph to answer.

1	Which region's ecology has been damaged by economic development?
2	Where exactly is the Aral sea?
3	
4	How could the decision to expand agriculture affect the Aral sea so much?
5	
6	
7	What are the results of the contamination of local drinking water?
8	
9	So why is the story of the Aral sea so important?

The Aral Sea: An Environmental Crisis

1 For many decades, environmental scientists have been warning us that enormous damage can be done to the ecology of a region by pressure for economic development and by apparently reasonable, but in reality short-sighted, responses to this pressure. The damage will not only negate any economic progress the region experiences but also has the potential to make the region unliveable. The recent history of the Aral Sea is a clear example of the damage that poorly planned economic activity can have on the environment.

2 The Aral Sea is located in a semiarid region of south-central Asia, in the recently independent states of Kazakhstan and Uzbekistan. Its basin extends into three other important republics: Turkmenistan, Tajikistan, and Kyrgyzstan. As recently as the 1950s, the sea covered an area of 66,000 square kilometres, with a mean depth of 16 meters. Two large rivers, the Amu Darya and the Syr Darya, flowed into the sea. The water from the two rivers, plus the annual rainfall, maintained the volume of water in the sea.

3 By 1990, however, the Aral Sea had shrunk to about 50percent of its origin area and had become two separate lakes. Its total water volume had dropped to less than one third of its 1950s volume. The sea's salt content, on the other hand, had increased by almost 300percent.

4 The root cause of these massive changes in the physical character the Aral sea was the decision, made in the late 1950s, to develop agriculture by using water from the Amu Darya and the Syr Darya rivers for irrigation. From the early 1960s, the area of irrigated agricultural land expanded rapidly, an expansion that reduced the flow of water into the Aral Sea to approximately 13percent of its pre-1960 total.

5 The consequences of the reduction in water flow and the increase in the Aral Sea's salt content have been catastrophic for the area surrounding the sea. Whole species of fish have died out, and commercial fishing, which used to be a productive economic activity, has practically stopped. Without the moderating influence of the vast expanse of the original sea, the climate of the territory within one hundred to two hundreds kilometres of the sea has become more extreme. Rainfall has decreased, while summers have become shorter and warmer. As a result, there are no longer enough frost-free days in the year for growing cotton, once the main crop of the Amy Darya delta. In addition, as the water level has dropped, the forests on either side of the Amy Darya river have dried up, causing the loss of about half the region's bird and mammal species. Another problem is that salt from the exposed sea bed is spread by storms on the surrounding land, increasing its salt content and reducing its fertility.

6 The impact of attempts at economic development on the ecology of the Aral Sea region, however, goes beyond the immediate consequences of falling water levels. Inefficient methods of irrigation allow much of the water to evaporate, causing soil salinization, the accumulation of crop-damaging salts in the soil. Other short-sighted agricultural practices include the extensive use of artificial fertilisers and chemical pesticides to support the production of two main crops, rice and cotton. As a result, the water that ultimately drains back into the rivers from the fields carries high concentrations of phosphates and nitrates, as well as chemical pesticides.

7 The accumulation of these toxic chemicals in the rivers is now contaminating local supplies of drinking water. As a result, in the years since 1975, people living in the area have increasingly suffered from a number of serious health problems. As is often the case with environmentally linked illness, children and women are most vulnerable. For example, in Karakalpakia, a region of Uzbekistan closest to the Aral Sea, the 1989 mortality rate for children was among the highest in the world

8 In 1990 a conference of international scientists met to consider the Aral Sea crisis. The scientists concluded that the region was already an ecological disaster area and that massive changes in agricultural policy and practices were urgently needed to reverse the process of environmental destruction. If such measures were not taken without delay, the Aral Sea basin would become a wasteland, incapable of supporting human settlements and activities.

9 The case of the Aral Sea and its basin is not unique; it is a powerful example of anthropogenic desertification, the conversion of agricultural land to desert by environmentally destructive human activities. This is a global problem. The Aral Sea crisis, therefore offers a clear warning of the dangers of poorly planned economic

development. It also, however, offers an opportunity to gather information needed to find solutions to desertification and to create models of economic development.

Task 6 Main idea check

Here are the main ideas of each paragraph. Match each paragraph to its main idea.

Paragraphs 1-4

- A) The basic cause of the damage to the Aral Sea was the use of irrigation to expand agriculture.
- B) This paragraph gives physical details of the Aral Sea in 1950.
- C) This paragraph gives details of how the Aral Sea changed between 1950 and 1990.
- D) The Aral Sea illustrates the massive ecological damage that can be caused by the careless economic development of a region.

Paragraphs 5-9

- E) As a result of the chemical contamination of drinking water, there has been an increase in human health problems.
- F) The reduced flow of water into the Aral Sea has had disastrous environmental and economic consequences for the sea and its basin.
- G) In 1990, a scientific conference decided that the Aral Sea region was an ecological disaster area in need of urgent action.
- H) The story of the Aral Sea is one example of the global problem of desertification through human activities.
- I) Short-sighted agricultural practices have increased the levels of salts, pesticides, and other damaging chemicals in the environment.

Task 7 Comprehension check

1. Describe briefly what change(s) the Aral Sea underwent between 1960 and 1990. Draw a simple diagram of the process.
2. The article outlines a clear solution to the problem affecting the Aral Sea region. True or false?

Task 8 Vocabulary Study – Synonyms

Find words in the article that are similar in meaning to the following:

1. To destroy the positive effect of something else (par. 1)
2. An area of land whose water ultimately flows into a river or lake (par. 2)
3. To become smaller (par. 3)
4. The process of bringing water to agricultural land (par. 4)
5. Causing something to become less extreme (par. 5)
6. To flow away (par. 6)
7. Not well protected against danger and injury (par. 7)
8. To cause something to go in the opposite direction (par. 8)

(adapted from Pakenham, K. J. *Making Connections*. Cambridge University Press, 2004)