

From VOA Learning English, this is **Science in the News**. I'm Bob Doughty.

And I'm Katherine Cole. Today we go to Botswana, where an international gathering recently agreed on urgent steps to protect elephants in Africa. But first, we report on a new movie about the search for oil and gas, and what the film forced the government of Botswana to do.

Jeff Barbee is an American filmmaker. He records real life events on film. Mr. Barbee was working on a story in South Africa about the Karoo desert when he saw a map of Botswana. What he saw shocked him. The map showed that large parts of Botswana were open for oil and gas exploration.

He traveled to the country. There he found evidence that the government had given its permission for fracking in environmentally sensitive areas. But officials had not told anyone about the activity.

Fracking is also called hydraulic fracturing. It is a process that uses high-pressure water and chemicals to break up underground rocks. This can cause oil or natural gas to be released. Critics say fracking operations are noisy. They also say fracking can create air pollution and pollute water supplies. But supporters say the activity is safe and creates jobs. And they say it will help meet the world's future energy needs.

Mr. Barbee's discovery of fracking in Botswana led him to make a documentary on the subject. His film is called "The High Cost of Cheap Gas." It documents and compares the process in both Botswana and the American state of Colorado. The film aims to show Africans what their future may look like if fracking operations continue.

In the film, farmers in Colorado say they had to stop raising cattle because fracking ruined the animals' water supply. Some Americans said they suspect fracking made them sick. Medical experts noted serious health problems from the chemical by-products released. Jeff Barbee says this could all happen in Africa.

The film reports what few people have known: that Botswana's government had quietly permitted searches for oil and gas in rural, unpopulated areas of the country. Mr. Barbee spoke to officials from Sasol, an energy business based in South Africa. The officials spoke about their projects in Botswana. The film uses hidden cameras to show what appeared to be fracking operations in national parks.

Mr. Barbee says the movie is not designed to criticize fracking. He says it is an effort to educate people about the process. He hopes this will lead to international discussions on the future of the industry.

Allan Schwartz is an environmentalist. He says the film will have an effect on people not only in Botswana, but around the world. He says the movie is about getting people to talk to each other, and to make sure they understand the effects of breaking up the underground rock.

Mr. Schwartz says fracking has already caused problems in his home country, Mozambique.

“The fracking at this stage is exploratory, and it’s happening on the borders of South Africa and Zimbabwe, and the consequences there at this stage is that it’s providing money to a kleptocratic government. It does not provide any work at all for anybody who is on the ground, who is local. But it is a massive amount of money that is coming in.”

Mr. Barbee says the discussions need to start with solid facts. He notes that the oil and gas industry has provided financial support for many pro-fracking studies. He says he used only independent research to make the film.

“This is a baseline where we can all have a communal conversation focused on the facts. Yes, there will be jobs, but those jobs might be more temporary than the governments and industry will admit. Yes, there are environmental impacts, but maybe they’re not as bad as some environmentalists say. Yes, in fact, this industry can go forward safely in some areas here, but maybe not in the protected national parks which have been set aside for decades for the future of humanity.”

At first, the government in Botswana denied it had given approval for fracking operations in the country. But after the movie was released, the government confirmed that some sub-surface fracturing had been approved.

Botswana has a comparatively small population for a country of its size. Only about two million people live there. Botswana is about the same size as Kenya, where more than 43 million people live.

The secrecy of letting energy companies search for gas and oil was a surprise to many. Botswana is known to be one of Africa's least-corrupt nations. Its economy is based on the trade of diamonds.

Shortly after the film was shown last year, the government released a statement. It said "Permission has...been given in some instances, in the past, for the use of industrial explosives in sub-surface fracturing, which some may view as a type of 'fracking.'"

The government said it has given permission for oil and gas explorations in Chobe National Park. The park is home to the world's largest herd of migrating elephants. Fracking is also taking place in the Central Kalahari Game Reserve, home to the San people. The San are believed to be one of the world's oldest cultures. They have for many years fought the government over land they claim as theirs.

Richard Lee works at the Open Society Initiative for Southern Africa. The group provided financing for the film. Mr. Lee says it is important for Botswana's government to show transparency and be more open with the public.

"This is the story about gas concessions across a country that people in that country don't know anything about. So, yes, the impact on the San is important, but so is the impact on other people in the country, and the nation as a whole. And that's why everyone in the country needs to have the right information, the latest information, so that they can decide for themselves what's in the best interests of Botswana."

The Open Society Initiative for Southern Africa placed information about the film and the issue of fracking on its website. There is also a page on the Facebook social media website with more information about the film and fracking. Mr. Barbee says all he wants is for the people of Botswana to be able to decide how much fracking -- if any -- they want to permit in their country.

Finally, an international gathering in Botswana has agreed on a plan of action to fight illegal trade in ivory and protect elephant populations in Africa. The International Union for Conservation of Nature announced the new measures late last year at the African Elephant Summit in Botswana's capital, Gaborone.

Ivory can be used in artwork or manufacturing. The hard, white material comes from the tusks or teeth of elephants.

The new international agreement urges governments to identify ivory trafficking as a serious crime. It calls on them to require the strongest sentences for crimes against wildlife. It also urges nations to work together on legal issues such as the capture and trial of criminal suspects and seizure of their property.

The president of Botswana, Ian Khama, told the delegates he supports the agreement.

“A strong momentum from all over the world is developing to turn this tide, and many nations and individuals are calling for solutions that are implementable and will work. It is now time for Africa and Asia to join forces to protect this universally valued species. I wholeheartedly invite your active participation and equally anticipate your unprecedented commitment to action.”

The gathering included government agencies and wildlife organizations from African nations where elephants live. Representatives of Asian nations whose citizens buy ivory were also present.

Julia Marton-Lefevre is the head of the International Union for Conservation. She says it is a good sign that both African and Asian nations attended the summit.

“The fact that this was a meeting involving the entire value chain of the elephant situation, the range countries, the transition countries and the consumer countries was unique and very important. And I think this sort of model will actually be followed in other parts of the world for other species and of course the Asian elephant also.”

Conference organizers said Africa could lose 20 percent of its elephant population in 10 years if illegal hunting continues at the current rate. They said the hunting has increased in recent years because of poverty and weak governance in Africa. They also noted rising demand for ivory in some countries.

Recently, China publicly destroyed more than six tons of ivory. The move was an effort to raise public understanding of the importance to protect wildlife.

Experts say Africa has an estimated 500,000 elephants. Botswana’s wildlife and tourism minister, Tshekedi Khama, says elephants help the economies of African nations. He says that without the animals, Botswana’s travel industry would suffer.

And he says making a decision to protect the elephants is not only for those at higher levels in the government, but for communities across the nation.

This **Science in the News** was written by Christopher Cruise. Our producer was June Simms. I'm Bob Doughty.

And I'm Katherine Cole. Join us again next week for more news about science on the Voice of America.

