The Global U8 Consortium

Joint Research & Education Committees

The Case Study Method

Presented By
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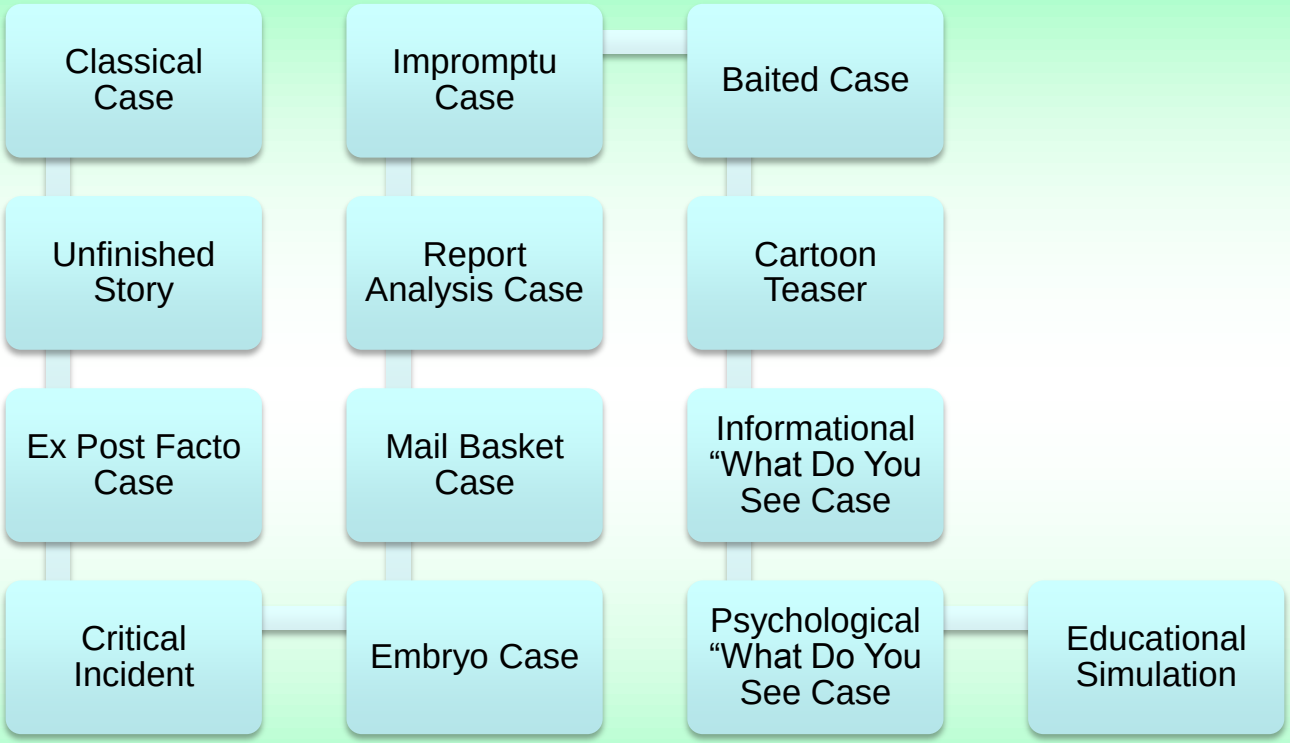
Types of Case Studies

Types of Case Studies



POLAROID'S TOXIC USE AND WASTE REDUCTION PROGRAM

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Fatkin also wondered how Polaroid should respond to the Toxic Use Reduction bill that MassPIRG, a public interest group. was planning to introduce to the Massachusetts General Assembly. Because Polaroid had endorsed toxic use reduction by adapting the OTA model, Fatkin believed that *if* Polaroid did not respond favorably to the bill, the company would appear hypocritical to the public. However, to applaud the bill might make Polaroid look "Pollyanna-ish" in the eyes of the industry. Top management held high expectations for the TUWR program. Fatkin, too, was deeply invested in it; he sat on the OTA panel that developed the model and was responsible for implementing TUWR at Polaroid.

METHODS OF WASTE REDUCTION

In-process Recycling

Example: separating and recovering cleaning solvents from wastewater to be used again within the closed loop of the process.

Plant Operations

Example; managing the rinse cycle more efficiently. For instance, to save on the amount of waste rinse water in the nickel plating process, the operator should preheat the rinse water, allow metals to dry in optimal position and optimal time between rinses, and use a fine spray for rinsing.

Process Technology and Equipment

Example: for paint removal, replacing the use of acidic methylene chloride with a modified sandblasting technique which uses recoverable plastic beads instead of sand.

Process Inputs

Example: substituting water-based inks for organic solvent-based inks in printing, and substituting less hazardous solvents for the carcinogen ben-zene which is used to dissolve chemicals in preparation for blending

End-Products

Example: changing from oil-base to water-base consumer house paints

POLAROID'S TOXIC USE AND WASTE REDUCTION PROGRAM

POLLUTION CONTROL VERSUS WASTE REDUCTION

Pollution control focuses on end-of-pipe emissions and therefore generally does not require major disruptions to the production process. Waste reduction seeks to reduce or eliminate pollution at the source, requiring research and development efforts and changes in raw materials, processes, or products. Each approach can be costly but in different ways.

Pollution control devices represent extra costs in production, not additional productive capacity. Many require large initial capital outlays and are costly to operate. The control-oriented system causes the costs of producing, treating, and legally disposing of hazardous waste to increase. Furthermore, even if a 'waste generator disposes of its waste legally, it can still be named liable under Superfund laws if that waste ends up at a site. For example, Polaroid was assessed $400,000 for the actions of one of its vendors who falsified incinerator records and engaged in illegal dumping.

The decision to implement the technology depends partially on the economics of a product and often includes production. finance, and marketing considerations. Waste reduction can alter the raw materials required for production. This can alter the product itself, so a market analysis is critical. The waste generator should perform an audit on where it uses chemicals, what quantity it uses, and where waste, leakage, worker exposure, and production of unsafe products occur.

All generators of toxic waste bear the increasing costs of worker health and disability insurance. Pollution control costs, however, include as well facilities that have to be built, operating costs, increased manufacturing costs, and retained sales of products that may be taken off the market because they are found environmentally unacceptable. Waste reduction costs, on the other hand, are included under capitalization costs and are therefore more difficult to isolate. Production costs may even be decreased due to increased efficiency and safety.

COMPANY BACKGROUND AND ORGANIZATION

Headquartered in Cambridge, Massachusetts, and operating since 1937, Polaroid designs, manufactures, and markets cameras, film, light polarizing filters, lenses, and chemical, optical, and industrial products. In 1987, at fifteen plants worldwide, Polaroid's operations "produced thousands of tons of waste, much of it from a thousand chemicals created or converted as part of the company's manufacturing processes." Polaroid is organized in a divisional matrix along ……

Types of Case Studies

CLASSICAL CASE

A holistic approach to the problem. It includes information such as: biographical data, psychological evidence, economic considerations, spiritual evidence, historical data, etc.

CLASSICAL CASE

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Discussion Questions

1. What factors account for Polaroid's commitment to toxic waste reduction?
2. What problems did Harry Fatkin face in trying to achieve waste reduction goals?
3. What "assets" does he have to work with?

Types of Case Studies

UNFINISHED STORY

A cliff-hanger approach to the problem. The problem is given and the learners come up with solutions for what the person in the problem might do in his/her situation

UNFINISHED STORY

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Discussion Questions

1. How Can Polaroid develop a data base that will provide accurate and useful information for its managers?
2. What position should Polaroid take on state-level toxics legislation?
3. How might Polaroid appease the environmental groups while they are developing their new program?
4. What should Fatkin do if Polaroid rejects his plan?

Types of Case Studies

EX POST FACTO CASE

An already developed solution to a problem is analyzed and evaluated.

EX POST FACTO CASE

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The TUWR program was adopted by Polaroid and the company was held up as a model by the EPA to be emulated by all manufacturers worldwide. Polaroid rode the crest of their celebrity, Fatkin became an international consultant making millions in assisting other companies to become more environmentally friendly.

Discussion Questions

1. What might Polaroid's have done to address it toxic waste reduction earlier?
2. How might Harry Fatkin handled the obstacles to implementing his TUWR program?
3. What would have been the ramifications to Polaroid if they had not addressed this problem?

Types of Case Studies

CRITICAL INCIDENT

An after the fact approach. A mini-event is described by the instructor and learners discuss.

Brings the learner to the climax point in the problem.

CRITICAL INCIDENT

POLAROID'S TOXIC USE AND WASTE REDUCTION PROGRAM

In 1986 a Greenpeace report stated the Polaroid discharges more toxic chemicals into Boston Harbor each day than General Electric, Honeywell, Monsanto, Gillette, Mobil, Digital Equipment, General Motors, and Hewlett-Packard combined.

Greenpeace demonstrators hung sheets on the bridge over busy Route 128, by the company's Waltham plant proclaiming them to be the state's biggest polluter.

What should the company do to repair its image?

Types of Case Studies

EMBRYO CASE

A small amount of information approach. Just enough information is given to establish a problem.

EMBRYO CASE

POLAROID'S TOXIC USE AND WASTE REDUCTION PROGRAM

Polaroid Corporation was recently cited as discharging more toxic chemicals into Boston Harbor each day than General Electric, Honeywell, Monsanto, Gillette, Mobil, Digital Equipment, General Motors, and Hewlett-Packard combined.

The company has been aware of this problem for several years and, in fact, Harry Fatkin, their director of Corporate Health, Safely and Environmental Affairs, announced a plan to reduce the company's total waste by 10 percent per year over the next five years. This Toxic Use and Waste Reduction model (TUWR), adapted from-Congress' Office of Technology and Assessment's (OTA) model. had some problems and Fatkin knew he would have to resolve the problems of model shortcomings and internal dissatisfaction before TUWR could effectively work.

Criticism of the program came from R&D, Manufacturing, Quality Control, even HR and Marketing

What should Harry Falkin do?

Types of Case Studies

MAIL BASKET CASE

For use with learners who have some experience. A problem is presented and is looked at in two ways, where the learner has to use already established policy and procedures for the solution and/or solve the problem by considering the individual's circumstances in the case.

Letter #1

MAIL BASKET CASE

POLAROID'S TOXIC USE AND WASTE REDUCTION PROGRAM

November 14, 1986

Dear Mr Fatkin,

As a Polaroid environmental engineer for the past 15 years I believe that our company should not take our responsibility to the environment lightly. I have just analyzed your TUWR proposal and feel that for Chemical Operations it is no big deal.

Resistance for the plan might result from that fact that before TUWR we could work at a leisurely pace. We didn't look at categories and say we'll go after some of the more toxic ones first. We looked at the ones that had the best economic payback or were easiest to do. This program will formalize waste reduction efforts, and us. We need to work a little faster and put our effort into it.

Sincerely,

Jim Glowing

Manager, Chemical Operations

Letter #2

MAIL BASKET CASE

POLAROID'S TOXIC USE AND WASTE REDUCTION PROGRAM

November 20, 1986

Dear Harry,

Look I'm not a rocket scientist but if you use less substances, and throw less stuff away, you are going to reduce pollution and the cost of doing business. Most materials now cost less to buy than they do to throw away.

You can buy a gallon of methanol for about $.85 and it costs you $1.20 to throw it away. Even if you don't do anything with it, and just take it and put it in the waste drum, you more that double the cost.

Less waste means less costs in hauling, treating, and so on. And you can quote me on that.

Sincerely,

Jim Ahearn

Director, Chemical Process, Research & Development

Letter #3

MAIL BASKET CASE

POLAROID'S TOXIC USE AND WASTE REDUCTION PROGRAM

November 24, 1986

Yo Fatkin,

You told us to get rid of the 20 barrels of “used cooking oil” and not ask any questions. Well my boys did that and now it seems like we got a problem. Some weasel of an EPA agent saw my guys disposing of the barrels and said we didn’t have the proper permits. Now the Badda Bing Waste Disposal Company is looking at some big dollar fines.

Hey Bro, we’re not going down alone on this one. You better have somebody there give somebody a call in the agency to get the heat off of us. Either that, or you pick up the $400K in fines.

Remember, we know where the other barrels are.

Vinnie

Badda Bing Waste Disposal Company

MAIL BASKET CASE

POLAROID'S TOXIC USE AND WASTE REDUCTION PROGRAM

Discussion Questions:

1. **What should Fatkin do with this kind of information?**

2. **Should he look to corroborate this information or run with it?**

3. **Given your experience, what should Fatkin do in this case?**

Types of Case Studies

REPORT ANALYSIS CASE

Learners study data in various kinds of reports.

REPORT ANALYSIS CASE

POLAROID'S TOXIC USE AND WASTE REDUCTION PROGRAM

Memorandum

DATE: November 24, 1986
TO: Anudda Kennedy, CEO Polaroid Corporation
FROM: F. Schwalm, Director Polaroid Manufacturing Division
RE: Costs of Pollution

I has come to my attention that Mr. Harry Fatkin, our director of Corporate Health, Safely and Environmental Affairs has proposed a new TUWR program to reduce pollution. I have read through the proposal with a great deal of interest.

While the Toxic Use and Waste Reduction program champions the views of “tree huggers” around the world, those of us in the plants, in the operating areas, who have to worry with the specifics of the day-to-day compliance and regulations find that meeting both our manufacturing and EPA regulations to be competing priorities.

In the attached Report, we determined that to meet our compliance goals for the next five years we need a capital program over $40 million. And the Toxic Use and Waste Reduction program alone would add another $10 million. The corporate view of a 10% reduction in pollution is a wonderful vision. We can set nice goals, but we have to make sure we have the resources to do it.

Long term, Mr. Fatkin is right on, that's where we've got to get. In the meantime, we've got to keep our head above water.

I recommend that we move slowly on this program. After you read the attached report, I believe that you will as well.

Discussion Questions:

1.What are the ethical responsibilities of the Polaroid Corporation?

2.What are the Financial responsibilities of the Polaroid Corporation?

Types of Case Studies

IMPROMPTU CASE

A real problem existing in the current group is looked at and potential solutions are suggested.

IMPROMPTU CASE

POLAROID'S TOXIC USE AND WASTE REDUCTION PROGRAM

As a member of this committee, I have a situation on which I would like some feedback. I am an employee of Polaroid. Last month, Harry Fatkin, director of Corporate Health, Safely and Environmental Affairs, at the spring stockholders meeting announced a plan to reduce the company's total waste by 10 percent per year over the next five years. But it was made clear that Polaroid's Toxic Use and Waste Reduction model (TUWR), adapted from Congress' Office of Technology and Assessment's (OTA) model has some problems. The essence of the OTA model is a ratio of waste generated to product produced. It gives no credit for recycling waste, nor does it differentiate between the levels of waste toxicity. At Polaroid, there is internal resistance to the TUWR program. Fatkin knows he will have to resolve the problems of model shortcomings and internal dissatisfaction before TUWR could effectively work.

Fatkin also wonders how Polaroid should respond to the Toxic Use Reduction bill that MassPIRG, a public interest group. will introduce to the Massachusetts General Assembly. Because Polaroid has endorsed toxic use reduction by adapting the OTA model, Fatkin believes that *if* Polaroid does not respond favorably to the bill, the company would appear hypocritical to the public. However, to applaud the bill might make Polaroid look "Pollyanna-ish" in the eyes of the industry. Top management holds high expectations for the TUWR program. Fatkin, too, isdeeply invested in it; since he sits on the OTA panel that developed the model and is responsible for implementing TUWR at Polaroid.

When it was introduced to Corporate, criticisms and concerns came from Directors of all units of Polaroid indicating that adoption of such a program would disrupt production, marketing, sales and relations with suppliers. It has been proposed that the company give serious consideration to weighing the creation of a “good public image” to the substantial profits expected by shareholders.

What should Polaroid’s Board of Directors do?

Types of Case Studies

BAITED CASE

Significant parts of the problem are withheld enabling learners to search further and/or insignificant material is added to the problem enabling learners to weed out the unimportant.

BAITED CASE

POLAROID'S TOXIC USE AND WASTE REDUCTION PROGRAM

At its spring 1987 stockholders meeting Polaroid announced a plan to reduce the company's total waste by 10 percent per year over the next five years. But it was clear that Polaroid's Toxic Use and Waste Reduction model (TUWR), adapted from Congress' Office of Technology and Assessment's (OTA) model had some problems.

At Polaroid, there was internal resistance to the TUWR program.

It was unclear how Polaroid would respond to the Toxic Use Reduction bill that MassPIRG, a public interest group. was planning to introduce to the Massachusetts General Assembly.

In 1986 a Greenpeace report stated that Polaroid discharges more toxic chemicals into Boston Harbor each day than General Electric, Honeywell, Monsanto, Gillette, Mobil, Digital Equipment, General Motors, and Hewlett-Packard combined.

Top management held high expectations for the TUWR program as an answer to the pollution problem, but still expects to realize high sales and high profits.

What do you think Polaroid will do?

Types of Case Studies

CARTOON TEASER CASE

Problem is presented in a cartoon format.

CARTOON TEASER CASE

POLAROID'S TOXIC USE AND WASTE REDUCTION PROGRAM

Types of Case Studies

INFORMATIONAL "WHAT-DO-YOU-SEE" CASE.

Learners are presented with a picture to recall information about people, places, events and/or things.

INFORMATIONAL “WHAT-DO-YOU-SEE” CASE

POLAROID'S TOXIC USE AND WASTE REDUCTION PROGRAM

Types of Case Studies

PSYCHOLOGICAL "WHAT-DO-YOU-SEE" CASE

Learners are presented with a picture to analyze the psychological factors present. They either analyze from their own perspective or are asked to interpret from the viewpoint of persons with vastly different backgrounds.

PSYCHOLOGICAL “WHAT-DO-YOU-SEE” CASE

POLAROID'S TOXIC USE AND WASTE REDUCTION PROGRAM

Types of Case Studies

EDUCATIONAL SIMULATION

Learners role play their responses to a problem

EDUCATIONAL SIMULATION

POLAROID'S TOXIC USE AND WASTE REDUCTION PROGRAM

Harry Fatkin, is the director of Corporate Health, Safely and Environmental Affairs for Polaroid. He has been concerned about the amount of pollution that Polaroid has been dumping into the Boston Bay for many years and has produced a program called the Toxic Use and Waste Reduction model (TUWR) that he believes is the answer. He has both his professional reputation and his job riding on the adoption of this new program.

Jim Ahern is the director of Chemical Process Research and Development and one of the lead chemists in Polaroid. Feels that the TUWR program is far too drastic a measure and that there are a lot of chemicals that are not going to hurt anybody or the environment. He thinks that the whole pollution issue is a matter of public perception.

Francis Schwalm, is is the director of Polaroid's Manufacturing Division and believes that Polaroid's people in the manufacturing sections are determined to meet the EPA compliance goals for the next 5 years but to do so the company will need a capital program over $40 million. The TUWR will cost another $10 million in addition. He is concerned that this will cut far into the company's profits, &consequently, his annual bonuses.

Sandy Smith, director of the Quality Control division believes that when less toxic chemicals are substituted for the more toxic & preferable materials, the quality of Polaroid's products could be sacrificed.

Dr. Nancy Doe is the chief research in the New Products Division. She feels that top management's objectives are difficult to obtain and production processes would have to be modified annually to reach the waste reduction goals. This would take time and resources away from her research.

Scenario:

At its Spring stockholders meeting Polaroid will announce a plan to reduce the company's total waste by 10 percent per year over the next five years. However, it is clear that Polaroid's Toxic Use and Waste Reduction model (TUWR), adapted from the US Congress' Office of Technology and Assessment's (OTA) model, has some problems. The Polaroid Board of Directors has asked that the key players in Polaroid who are for, against and neutral on the proposal air their thoughts at the meeting before shareholders are asked to vote on the program.

Elements of the Case Method

The Case - Always a picture presented orally, in writing, visually or through role playing.

*** Criteria:**

Realistic
Depict Process
What is Happening in & to People

*** Limitations:**

No reenactment ever depicts what really might have happened
Case writer bias

*** Opportunities:**

Do fieldwork and write own histories
Analyze cases still in the making
Examine own experiences

Elements of the Case Method

Case Analysis — If the process is to result in enhanced skills, modified attitudes and learning exchange, then it should approximate what is done by thoughtful people in everyday life.

*** Comprehensive:**

More thorough than the superficial way we are called upon to make decisions in everyday life

*** Flexible:**

Misleading by presenting checklists or questions that WILL unlock the secrets of the case

*** Culminate in Reflection:**

Apply to everyday events
What has been learned?

*** Limitations:**

Bias — our own, other group members or the developer
Expectations: Either Empty exercise or long term benefits
Skill in language

Elements of the Case Method

Case Discussion — The process used by the facilitator.

* **Should Be Focused:**
  - All learners should be centering on the points in discussion at the same time
  - Unproductive to swing between getting information and comparing opinions - do one, then the other

* **Should Achieve Coverage:**
  - Talk that gets somewhere
  - Keep it moving
  - No single answer

* **Should be Open and Non-Threatening:**
  - Freedom to try out new ideas.
  - Freedom to site first hand experience
  - Freedom to speak one's mind
  - Freedom to propose and lead

Identifying or Developing a Case

Where to Obtain Cases

*Ask a qualified person to write one

*Secure them from literature found in libraries or the Web

*Request them from state or national offices of various agencies or organizations

How Long?

*Brief, yet relatively complete

*Depending on complexity, 500 to 3000 words

*Include what is known of the background or history

*Include the situation itself

*Include maybe possible courses of action or questions for discussion

Suggestions

*Use only cases that have enough information to permit analysis during the session

*Use a case that is realistic, practical and within the knowledge and interests of the learners

*Get the case in the hands of the learner in ample time for it to be read carefully, before analyzing

*Select the best techniques for analyzing and discussing the case during the session

Environment
Web Sites Cheat Sheet

Source	Contents	URL
Ashoka	Initiatives developed by Ashoka Fellows	http://www.ashoka.org/environment?gclid=CMTrwPXE9pICFRkyFQodK0FGFw
Environmental Justice Case Studies by Michigan State University	Domestic and International Case Studies	http://www.umich.edu/~snre492/cases.html
EPA	Case Studies & Best Practices	http://www.epa.gov/lean/studies/index.htm
Environmental Expert. Com	Articles and Case Studies	http://www.environmental-expert.com/article-index.aspx
The National Center for Case Study Teaching in Science Case Collection	Searchable for case studies by discipline	http://ublib.buffalo.edu/libraries/projects/cases/ubcase.htm

Case Study Development Exercise

1. Divide into 5 Small Groups

2. Review the Case Study assigned to your group:

3. Analyze on the **Elements** of your Case Study:

- Actors
- Situation
- Setting
- Known Facts
- Unknown Facts
- Hidden Facts
- Problem
- Solutions

4.Use the **Assigned Case Study** example:

- See Handout

5. Redesign the **Case Study** to the new type:

- See Handout

Case Study Development Exercise
Case Assignment

Group	Case Assignment
1	Ex Post Facto Case
2	Embryo
3	Mail Basket
4	Baited Case
5	Educational Simulation

Case Study Development Exercise

The Curse of Oil in Ogoniland

Problem

The Nigerian delta has some of the best agricultural land in Africa, as well as vast oil resources. The area is densely populated by many different tribal groups, including the Ogoni people who have lived there for over 500 years. Several oil companies, including Shell, set up operations in the 1950s and since then, the land, water, and air have been polluted to such a great extent that the Ogoni people's livelihood is threatened.

The effect of pollution on the Nigerian delta has been great. As a result of oil spills and industrial waste dumped into the Niger River Delta, fishing as a means of supplying food for the tribe is no longer an option because very few fish remain in the river. The groundwater is contaminated and is not safe for drinking, and the rainwater cannot be collected for drinking because it falls as acid rain. Dr. Owens Wiwa, a medical doctor and human rights activist from the area says, We cannot drink the water from the streams, you can't drink rainwater and there is no piped water. Our right to drinking water has been taken away by the company, our right to farming has been taken away by the company, and our right to clean air has also been taken away by the company. Developed countries such as the United Stated require mud from drilling to be enclosed in a containment well or land fill to prevent seepage. However, the Nigerian government permits oil operations to dispose of the drilling waste directly into the river.

The air has also been severely polluted. The natural gas that is a byproduct of drilling is flared off horizontally from five flaring stations, some of which are near homes and villages. Flaring is a process in which the gas is collected in batches and then combusted, creating a loud explosion. More dangerous in the long run is the massive amounts of carbon dioxide created by flaring off gas that could be sold or even donated to the local people for a cooking fuel. Flaring, combined with the methane and soot produced by the two refineries, petrochemical complex, and fertilizer complex that are in Ogoniland produce low air quality linked to cancer, asthma, and other lung diseases. The flaring has also been associated with reduced crop yield and plant growth on nearby farms.

The most immediate threat to Ogoni people is oils spills, which have damaged their land dramatically. At least one hundred pumping stations and pipelines crisscross Ogoniland (1). The pipelines run over farm land and through villages; leaks and spills are a common occurrence. From 1970 to 1982, 1,581 oil spill incidences were recorded in the Niger Delta, over 1.5 million gallons of which were a result of Shell's 27 incidents. While Shell runs oil operations in over one hundred different countries, 40% of the company's spills were in Nigeria (3). What little Shell has done to clean up these spills has been delayed and inadequate. Blowouts (leaks resulting from cracks in the pipeline have gone for days without attention.