



PROTECT THE PLANET

Study circle



ENERGY USE IN DAILY LIFE: FOOD

This guide has been designed to help Centres/Groups of the Sathya Sai International Organisation (SSIO) facilitate a study circle on the topic of Food and its impact on the environment. It has been developed as part of a series of study circle guides that aim to look at energy use in daily living. This is part 2 with an estimated duration of one hour.

Part 2 will cover: *The impact of our food choices in relation to energy use and what action we can take to help reduce our energy footprint through the food we eat.*

PART 2

OPENING AND INTRODUCTION			
ACTIVITY	NOTE TO FACILITATOR	RESOURCES	DURATION
3 OM's or silent sitting followed by an opening prayer	Depending on the audience of this study circle, either omkar or a minute of silent sitting can be done. Either way, the objective of this activity is to help settle the group and establish group dynamics. This is the same for whether a prayer or short reading is used.		1 min
Introduce today's topic	<p>This study circle is part of the Serve the Planet (STP) initiative of the SSIO.</p> <p>The purpose of this study circle is to help us to better understand how food production, processing, consumerism (choices) and disposal, all contribute towards the consumption of energy. Through this, we will navigate ways of conserving energy sources as well as mitigating environmental impacts.</p> <p>It is important to remain respectful and open at all times. Keep in mind that the Study Circle is about sharing and exploring the topic and inspiring each other rather than 'finding the right answers.'</p>		1 min
TODAY'S DELIVERY			
ACTIVITY	NOTE TO FACILITATOR	RESOURCES	DURATION
Question 1: What is the primary source of energy required for our food?	<p>Read the quote below and discuss the following questions:</p> <p><i>"The earth has always been worshipped by the ancients of Bharat as Mother Earth, since it is the earth that, in some form or the other, provides food and sustains life. Most gratefully the ancients said: 'O Mother Earth, I am able to have food on account of your kindness.' Without the earth, we cannot have grain, and that is why earth was given so</i></p>		5 mins

	<p>much respect and was accorded the position of a mother.” – Sathya Sai Baba (Summer Showers 2000.02: May 15, 2000)</p> <ul style="list-style-type: none"> - What are the vital natural elements required for the production of food? <p>You could use the following points to support the discussion.</p> <p>Our food, or all the ingredients required to prepare our meal, comes directly or indirectly from plants. A plant requires essential natural elements, primarily, sunlight (energy), air, water, soil/land and nutrients, which Mother Nature provides for its growth. (Refer to Module 3, Topic 1 of Serve the Planet 2017 for more information on this topic)</p> <p>Energy has always been an essential component in food production. Prior to the industrial revolution, the primary energy input for agriculture was the sun, where photosynthesis enabled plants to grow, and plants served as food for livestock, which provided fertiliser (manure) and muscle power for farming. However, because of the industrialisation and consolidation of agriculture, food production has become increasingly dependent on energy, that is largely derived from fossil fuels.¹</p>		
<p>Question 2: <i>To what extent is Energy used in the food industry?</i></p>	<p>Ask the group to think about and discuss the following:</p> <ul style="list-style-type: none"> - How much energy is required for the food we eat on a daily basis? - Are we aware of the sources of energy used in the various stages of the food supply system? <p>You could use the following points to support the discussion.</p> <p>Food, itself is a source of energy. But the amount of energy used to make food is greater than the energy we get out of it.² Let us look at the various stages of the food supply system that require energy.</p> <ul style="list-style-type: none"> ● Agriculture/production ● Processing ● Handling ● Transportation ● Consumption ● Waste management <p>The food industry largely depends on energy, predominantly on fossil fuels, to produce enough food to meet the global demand.³ It requires energy at different stages as follows:</p> <p><u>Agriculture/production</u> – In mechanised/industrialised farming, agriculture or production of crops and livestock requires nutritional content, water and energy. Energy, for this stage of the food supply system, is used in the form of electricity or fuel (gasoline or diesel) to operate machinery</p>		<p>8–10 mins</p>

and equipment, for transport, and to:

- **Make** tonnes of synthetic nitrogen fertiliser⁴ or mining other fertilisers such as potassium and phosphorus¹
- **Produce** tonnes of pesticides every year³
- **Power** millions of trucks and machines responsible for sowing, spraying and harvesting plant food crops³
- **Pump, treat and supply** large volumes of water to irrigate the farm field
- **Operate** machines for meat production at millions of slaughterhouses and for dairy operations globally³
- **Drive** millions of fishing trawlers that hunt and kill 1–2 trillion fishes out of the oceans, every year⁵

Processing – This stage requires energy to operate machinery and equipment for transport, and to:

- **Transform** raw ingredients into a food product, such as the processing of raw corn into cereal⁶

Handling – This stage requires energy for highly processed and heavily packaged food, specifically, to:

- **Package** food after processing for service and sales
- **Refrigerate and freeze** food during transportation and for sales and service

Transportation – Energy is used for transportation, which is required for all stages of the food supply system, from extracting of resources for farming needs, farming, processing to distributor/retailer/market and waste management. In particular, energy is used to:

- **Transport** tonnes of crops and other food to feed livestock, locally and globally
- **Transport** tonnes of fruits, vegetables, nuts, seeds, other plant-based foods and animal-based food products to markets for public consumption, locally and globally

Consumption – This stage relates to domestic energy consumption to:

- **Store and prepare food** for individual consumption

Waste management – Energy, mainly fuel, is required to:

- **Transport** wasted food to landfill

Research shows that it takes between 28–54 and 3.3 calories of energy to produce 1 calorie of protein, from animal-based and plant-based foods, respectively.⁷ Any food wastage is also an indirect waste of the energy that has gone into producing that food in the first place.

Key facts:

	<ul style="list-style-type: none"> ● Food systems currently consume 30% of the world's available energy. ● Modern food systems are heavily dependent on fossil fuels. 		
<p>Question 3: <i>How does energy use in the food system affect the environment ?</i></p>	<p>We have seen how a large amount of energy is used at every stage of the food production process and how this energy is mainly derived from fossil fuels. But in the discussion below, we will see how this energy consumption affects the environment</p> <p>Pose the following question to the group:</p> <ul style="list-style-type: none"> - How does the high level of energy consumption in the production of food affect the environment, including people in poorer countries? <p>Use the information below to support your discussions:</p> <ul style="list-style-type: none"> - Food production is rising sharply to meet the demands of an exponentially growing global population. Meeting this demand requires more carbon-based fuels and nitrogen-based fertilisers, both of which lead to a warming of the earth's temperature, pollution of land, water and air, climate change, and a host of other ills.² - Today more than a billion people are starving due to the lack of food.⁸ This is because 60–80% of plant produce is bought by the animal-agriculture industry, to raise livestock for milk, meat and eggs.⁹ The animal agriculture industry thus drives up the price of plant produce like grain, wheat, rice, soy, etc., making it impossible for the poorest to afford or physically obtain. For example, Ethiopia exports most of the plants it grows to Western countries who have the highest production of meat, milk and eggs, while most of its own populace experiences daily famine and death due to starvation.¹⁰ - Most meat, eggs and dairy products are now produced on factory farms, which are huge industrial livestock operations that raise thousands of animals in confined conditions without access to pasture. Since the animals are unable to graze, factory farms require tremendous quantities of feed produced by industrial crop farms using the energy-intensive processes described in 'Discussion 2' above. Factory farms are also potential sources of ground and surface water pollution, which ultimately require municipalities and private landowners to expend additional energy on water treatment.¹ - Even renewable energy sources in the form of food-based feedstocks such as corn, soy, sugar and palm dominate the world markets for biofuels and create unhealthy competition for farmland and freshwater.² <p>And these are not the only environmental impacts resulting from the food production industry; water pollution, deforestation, release of harmful gases and emissions,</p>		<p>10–12 mins</p>

Group introspection: **Do you think our food habits and the product choices we make, have an impact on energy consumption and the environment ?**

chemical waste from fertilisers and pesticides and general waste are further harming the environment.

After watching the video and reading the quotes below, take a couple of minutes to reflect on the group introspection question.

“Make proper use of natural resources. God’s creation is very sacred. Do not pollute it. How sacred are the five elements given by God! But, today, the air we breathe, the food we eat, the water we drink, the sound we hear – everything is polluted. All these sacred elements have been made unsacred by humanity. That is why the world today is afflicted with so many diseases. That one is a true human being who makes sacred use of the five elements. Never waste natural resources.” – Sathya Sai Baba (Divine Discourse in Sai Kulwant Hall, Prasanthi Nilayam; July 18, 1996)

“Man should exercise his discretion and discrimination in regard to food habits.” – Sathya Sai Baba (SSS 27.3: January 21, 1994)

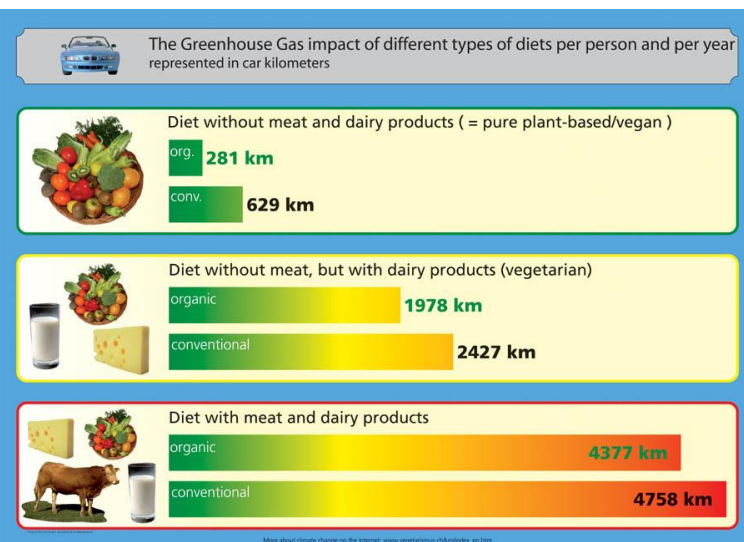


Image adapted from: "Organic: A Climate Saviour?" The foodwatch report on the greenhouse effect of conventional and organic farming in Germany

Video 1:
<https://www.youtube.com/watch?v=JjAl-vJTXjM> (55 secs)

Video 2:
<https://www.youtube.com/watch?v=g1z1taw6yNw> (1 min 30 secs)

(*Note if no video facilities are available on-site, participants can be sent ALL video links beforehand to watch at home prior to the study circle taking place)

Question 4: **What can we do daily to reduce our energy footprint in relation to food, and serve Mother Earth?**

After introspecting on the above question, ask the group about ways to reduce our energy footprint. Read the below quote and share some of the points below, if they are not covered during group discussion.

Practicing ‘Ceiling on Desires’ in this way will also help save millions of animals from exploitation and slaughter, drastically reduce rainforest destruction and species extinction, save precious water, redistribute food to hungry people, significantly reduce air, water and land pollution,¹¹ as well as improve our own health by reducing the risk of heart disease, cancer, diabetes, obesity, stroke, allergies and intolerances.

- **Eat vegetarian food and reduce dairy intake or opt for a**

20 mins

100% organic plant-based diet¹²

“A global shift towards a meat-free and dairy-free diet is vital to save the world from hunger, fuel poverty and the worst impacts of climate change” (**United Nations Environment Programme’s** (UNEP) International Panel of Sustainable Resource Management. 2010)

See **Attachment A** for practical tips on how to replace dairy and egg products.

- **Buy locally produced and seasonal food** – Buy locally produced seasonal fruits, vegetables and other food items grown in your local farmers’ market. Your locally-grown fruits and vegetables will not only taste great they will be better for the planet as well, since it avoids the need for transportation and storage. This also promotes decentralisation of food production.
- **Use your garden and terrace to grow vegetables and plants** – These ‘natural solar panels’ will help absorb excess carbon and pollutants from the atmosphere, and produce much needed oxygen, as well as reducing soil erosion and providing homes for vulnerable beings.
- **Grow an environmentally-friendly garden** – Avoid mixing the garden soil with chemical laden fertilisers, which will only lead to pollution of water sources with run-offs carrying petrochemical pesticides, herbicides and inorganic fertilisers. Furthermore, food produced in such chemical infused soil creates long-term health consequences. Refer to **Attachment B** on tips to grow an environmentally-friendly garden.

“Do not waste food. Food is God” – Sathya Sai Baba (SSS 29.69: July 18, 1996)

- **Avoid food waste** – One of the easiest ways to help conserve energy on food production is to ultimately avoid food waste. Wasting food means wastage of energy in all stages of the food chain, i.e., the energy required to produce food from agriculture, through transportation, processing, handling, retailing, preparation and consumption. An estimated **one-third of the food we produce is lost or wasted**, and with it an estimated 38 percent of energy consumed in food systems.¹³
- Wastage of food also represents the arguably unnecessary dispersal of pesticides, carbon, airborne particulates, and other pollutants associated with producing foods.¹⁴
 - To avoid wastage, plan your meals, use grocery list and avoid impulse buys. Buy only what you need and will use. Freeze, preserve, or can surplus fruits and vegetables – especially, abundant seasonal produce. Shop in your refrigerator first! Cook or eat what you already have at home before buying more.

- **Convert waste into resources (composting)** – Please note that the food we buy/grow and cook for consumption should be consumed and not wasted. Food and vegetable peels and contents that are not edible can be composted and converted into nutrient-rich substance, i.e., compost. Composting is an effective solution to divert organic waste such as food scraps, spoiled/rotting foods, yard and garden waste away from landfills. It transforms waste into a beneficial, free and organic fertiliser for the soil which aids in the healthy and strong development of plants and better and nutrient-rich harvests. By minimising organic waste, we save both energy and fuel needed in transporting waste for disposal. As such, diverting waste from landfill will help to reduce methane emissions from landfill and reduce our carbon footprint.
- **Innovative agricultural techniques** – Innovative agricultural techniques will help in reducing the vast difference in energy input to food output ratio. For example, drip irrigation provides more crop per drop, sparing freshwater and the energy needed to pump it.²

For additional practical tips on ways to reduce our energy footprint, please refer to the mini-booklet available at <http://www.sathyasai.org/ya/serve-the-planet>.

These approaches help us realise how much each one of us can do – because **each one of us is ultimately responsible for how energy and global resources are used**, not just industries and governments. We are the consumers of the products. If we make environmentally-friendly decisions about what we consume, industries and governments will also inevitably follow.

SUMMARY AND CONCLUSION

Closing summary of today's session and what to expect at the next session and homework

So far, we have learned:

- The extent of energy used in the 'food sector'
- How this affects the environment
- How we can reduce our energy footprint through the food we eat
- Which foods can help us to serve Mother Earth

In PART 3 of this study circle series, we will cover how we can conserve energy in relation to transportation.

HOMEWORK:

1. For personal reflection: Do you buy, cook and eat more food than you need?
2. What are the ways in which you can reduce wasting food and this way save energy?
3. Make a list of the ways in which you can reduce your

2 mins

	<p>CO₂ footprint through food you eat.</p> <p>For more information on the choice of food, its impact on the environment and its importance for spiritual progress see Module 3 on Food from Serve the Planet 2017 – Eating to Protect the Planet</p>		
CLOSE	<p>Closing prayer or reading</p> <p>Prayer for universal peace - <i>Om Shanti, Shanti, Shanti</i></p>		1 min

Note: Ideally there should be two facilitators in groups of ten or more participants. The first facilitator is the one who is conducting the study circle. The second facilitator observes the group's dynamics and informs the first facilitator of any lethargy and confusion from participants. This second facilitator also conducts the opening activity (E.g. Omkar) and the sharing of insights at the end. This helps give variety to the participants, but also allows the first facilitator space to capture important feedback and learning points for insight sharing.

Attachment A

We can easily replace:

- Cow's milk with soya/rice/almond/coconut milk
- Yogurt with plant-based curds
- Butter with vegetable spreads
- Cheese/paneer with dairy-free cheeses and tofu
- Icecreams with sorbets or dairy-free icecreams
- Chocolate with dark chocolate
- Eggs with egg replacement powder (baking) or tofu (scrambled)

Attachment B

Tips for growing an environmentally-friendly community garden – Below are a few suggested healthy and eco-friendly gardening practices:

- Opt for compost, which uses organic material and serves as a natural alternative to chemical fertiliser (e.g. cow dung or horse manure)
- Make your own chemical-free herbicides to treat any plants affected by pests (e.g., a solution of ghost pepper, water, garlic, mint and clove can be used to treat aphid-infested plants)
- Welcome pest-controlling predatory insects such as ladybug and beetle by planting some native plants
- Consider diverse planting and include bright flowering plants, such as marigold and sunflower, to deter pests
- Consider companion planting, such as herbs and vegetables
- Designate a plot in the garden as a pollinator plot by planting wildflowers for bees
- Prepare seedlings indoors before the end of the frost season (or as appropriate) by reusing or upcycling pallets/containers/flower pots and organic potting soil. Consider making your own DIY seedling pots from old newspaper or cardboard boxes, reuse yogurt, butter tubs etc., or visit garden stores where they may give away old pallets for free
- Install drip irrigation to transport water directly to the plant, thereby conserving water by not watering the whole bed or plot
- Install a composting pit, bin or bench
- To prevent weed growth and maintain water and air balance in the soil, install breathable fabric weed-block mat to cover the prepared plot prior to planting, or apply 2–4 inches of mulch on top of the garden soil after planting. Compost locally available chipped woods, leaves, a layer of newspaper with grass clippings, or grass clippings alone to make inexpensive mulches
- Remember to apply refuse, reduce, reuse, recycle and upcycle principles

References

1. <http://www.gracelinks.org/118/energy-and-agriculture>
2. <http://www.sustainableamerica.org/blog/how-to-make-the-food-system-more-energy-efficient/>
3. Dr Will Tuttle. *The World Peace Diet*. Lantern Publishing 2005
4. The Fertiliser Institute - US Fertiliser statistics
5. Dr Richard Oppenlander. *Circles of Compassion - Our Lifeline Revealed Through The Eye of Justice*. 2014
6. <https://www.chooseenergy.com/blog/energy-101/energy-food-production>
7. David Pimentel. *Sustainability of meat-based and plant-based diets and the environment*. The American Journal of Clinical Nutrition 2003
8. Holt-Giménez, Eric. "We Already Grow Enough Food for 10 Billion People...and Still Can't End Hunger". Common Dreams: Breaking News & Views for the Progressive Community. May 2012
9. "Executive Summary: Feed Supply". Food and Agriculture Organization of the United Nations.
10. Keith McHenry. *Circles of Compassion - Until Every Belly is Full*. 2014

11. Dr Richard Oppenlander. *Comfortably Unaware*. Published 2012
12. Dr Sailesh Rao. *Carbon Dharma* - Published 2011
13. <http://www.fao.org/energy/home/en/>
14. <http://www.postcarbon.org/so-much-wasted-energy-rethinking-food-waste/>

Recommended literature and viewing

1. *Comfortably Unaware* - Dr. Richard Oppenlander. Published 2012
2. *Carbon Dharma* – Dr. Sailesh Rao. Published 2011
3. *Food Choice and Sustainability* - Dr Richard Oppenlander - https://www.youtube.com/watch?v=kaFM_9K8J88



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