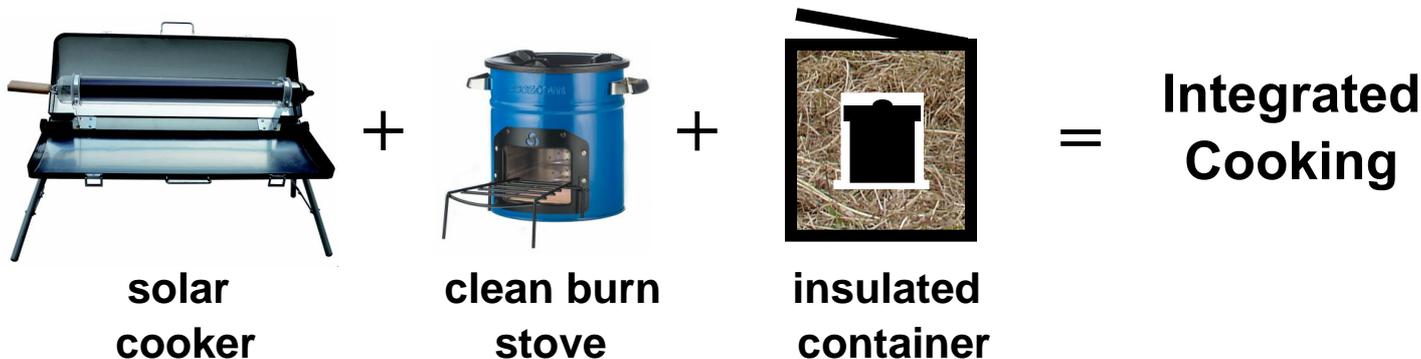


## What is Integrated Cooking?

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“Integrated Cooking” is the answer to the following question: *How can we cook our food while using as little fossil fuel as possible?* By combining three different cooking technologies, we can cook every day without using any fossil fuels at all, and, with enough planning, eat hot food at whatever time of the day we want it.



Solar cookers can cook food without burning any wood or fossil fuels. Once you own a solar cooker, cooking is free on sunny days. But even in the sunniest regions of the world there will sometimes be days when the sun doesn't shine, or doesn't provide enough power to cook a full meal. For some people, this is an argument for rejecting solar cookers – what is the point of them if they don't work every time you want to use them? But that is like saying that it is pointless owning a snow-board because it doesn't snow every day. When it *does* snow, you can enjoy your snowboard, and when it *is* sunny, you can use your solar cooker. Solar cookers can be the cookers first choice because the different types allow you to cook quickly, or slowly, and at a full range of cooking temperatures. Even the humble Cookit<sup>1</sup> will cook a couple of litres of soup, given 5 – 7 hours of direct sunlight.

What about cooking on non-sunny days? Wood and other biomass (e.g. corn husks, animal dung) are not fossil fuels and therefore have low carbon footprints. But on open fires they produce a lot of smoke. This can be avoided by burning them more efficiently in clean burn stoves, like rocket stoves<sup>2</sup>. Such stoves can be three times as efficient as an open fire. They produce enough heat to cook using twigs, and there is very little smoke. They provide an efficient way of cooking when there is no sunlight.

An insulated container is the final component of the integrated cooking approach. It comes in many forms. You can find plenty of descriptions and pictures by googling 'haybox'<sup>3</sup> or 'fireless cooker.' The essential components are a rigid or semi-rigid container (e.g. a box, or a basket), a liner that will not melt or offgas<sup>4</sup> when exposed to a hot cooking pot (e.g. linen, cotton, or wool), and insulation to go between them (e.g. hay, cotton shoddy, sheep's wool, or an old sleeping bag). Some commercially produced models are available – e.g. the Wonderbag<sup>5</sup>, which even dispenses with the rigid container.

A haybox works by keeping your food at cooking temperature<sup>6</sup> long after you have taken it off the rocket stove or out of your solar cooker. Once you have got the food to cooking temperature<sup>6</sup>, you can put it in the haybox and it continues to cook. Typically, using a haybox saves between a third and two thirds of the usual cooking time<sup>7</sup> and a corresponding portion of fuel. And if while using a solar cooker the sun goes down, you can finish cooking your meal in the insulated container. Once cooked, the food stays hot for several hours, making it possible to eat at a time of day that is convenient for you.

<sup>1</sup> <http://www.slicksolarstove.com/shop/solar-panel-cooker/>

<sup>2</sup> <http://www.slicksolarstove.com/shop/versa-lite-rocket-stove/>

<sup>3</sup> [https://www.google.co.uk/search?hl=en&site=imghp&tbm=isch&source=hp&biw=1120&bih=770&q=haybox&og=haybox&gs\\_l=img\\_3..01301241010241310124101242879.4473.0.6544.6.6.0.0.0.118.625.115.6.0....0...1ac.1.64.img\\_0.6.623.qE3d-HXxYTU](https://www.google.co.uk/search?hl=en&site=imghp&tbm=isch&source=hp&biw=1120&bih=770&q=haybox&og=haybox&gs_l=img_3..01301241010241310124101242879.4473.0.6544.6.6.0.0.0.118.625.115.6.0....0...1ac.1.64.img_0.6.623.qE3d-HXxYTU)

<sup>4</sup> Offgas - give off noxious chemicals or gases.

<sup>5</sup> [http://www.amazon.co.uk/Wonderbag-Portable-Slow-Cooker-Recipe/dp/B00FXKMG00/ref=pd\\_sim\\_sbs\\_kh\\_4?ie=UTF8&refRID=1MC68WXMR5WQWAGA49V9](http://www.amazon.co.uk/Wonderbag-Portable-Slow-Cooker-Recipe/dp/B00FXKMG00/ref=pd_sim_sbs_kh_4?ie=UTF8&refRID=1MC68WXMR5WQWAGA49V9)

<sup>6</sup> See our article on temperatures and solar cooking

<sup>7</sup> [http://solarcooking.wikia.com/wiki/Heat-retention\\_cooking](http://solarcooking.wikia.com/wiki/Heat-retention_cooking)

Integrated cooking may not be a priority in the UK, where we are lucky enough to have access to convenient cooking power that we can usually afford<sup>8</sup>, like electricity and gas. In the poorer third world countries, integrated cooking could transform household budgets. Three out of every seven people on earth rely on burning wood or other biomass in order to cook their food. That's three billion people - yes, 3,000,000,000 people! In order to collect that wood or biomass, girls and women (rarely men) walk miles every day. For example, in a study of a community in Northern India, household members walked an average of 2.6 km per trip to fetch fuelwood, travelling an estimated annual distance of 325 kilometres, resulting in the collection of 1.3 tonnes of wood<sup>9</sup>. In Tanzania, some women were walking up to 10.5 km daily to collect wood<sup>10</sup>. The same study reported that in Malawi and Kenya, women were walking for over an hour a day to get woodfuel<sup>10</sup>. Burning wood and other biomass inside buildings on 'three stone' fires or stoves produces a smoky atmosphere and general air pollution which imposes considerable disease burdens<sup>11</sup>.

There is no doubt that wood and biomass burning on open fires and simple stoves has deleterious effects on the lives of a large proportion of the human population in third world countries. It is for this reason that organisations like *Solar Cookers International Network*<sup>12</sup> and the *Global Alliance for Clean Cookstoves*<sup>13</sup> run programs to encourage and support the adoption of Integrated Cooking.

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<sup>8</sup> It would be unusual to find a family spending more than £2 per week on the energy for cooking:

<http://www.confusedaboutenergy.co.uk/index.php/buying-household-appliances/85-cookers/118-cookers#.VeMIDiVhBc>

<sup>9</sup> [http://s3.amazonaws.com/academia.edu.documents/31060602/ivotiparikh\\_abs.pdf?AWSAccessKeyId=AKIAJ56TQJRTWSMTNPEA&Expires=1440987199&Signature=s2%2BDelSh01PctvAhAhsQcvL1zU%3D&response-content-disposition=inline](http://s3.amazonaws.com/academia.edu.documents/31060602/ivotiparikh_abs.pdf?AWSAccessKeyId=AKIAJ56TQJRTWSMTNPEA&Expires=1440987199&Signature=s2%2BDelSh01PctvAhAhsQcvL1zU%3D&response-content-disposition=inline)

<sup>10</sup> [http://www.sei-international.org/mediamanager/documents/Publications/Climate/WP\\_clean\\_cooking\\_fuels\\_21April.pdf](http://www.sei-international.org/mediamanager/documents/Publications/Climate/WP_clean_cooking_fuels_21April.pdf)

<sup>11</sup> [http://www.who.int/phe/health\\_topics/outdoorair/databases/FINAL\\_HAP\\_AAP\\_BoD\\_24March2014.pdf](http://www.who.int/phe/health_topics/outdoorair/databases/FINAL_HAP_AAP_BoD_24March2014.pdf)

<sup>12</sup> [http://solarcooking.wikia.com/wiki/Integrated\\_Cooking\\_Method](http://solarcooking.wikia.com/wiki/Integrated_Cooking_Method)

<sup>13</sup> <http://cleancookstoves.org/>