

Glossary

The following words are defined as they are used in the text.

A

a priori—at the beginning; given.

abdomen—the part of the body containing the stomach and intestines.

abolition—the banning of something.

abrasives—substances used for grinding, polishing, sanding, etc., such as sandpaper.

abundant—plentiful; available in large quantities.

accessible—easily reached or obtained.

accommodate—to adjust.

accumulated—gathered or saved (up).

acetate plastic—a clear plastic sheet that can easily be marked with a pen or other writing instrument.

acidity—the degree to which a substance has the properties of an acid.

acupuncture—the ancient Chinese practice of piercing parts of the body with needles to treat disease or relieve pain.

acute—severe, serious.

adept—skillful.

adhesive (solder, glue)—a substance used to permanently join two objects.

adobe—unburnt sundried brick.

adverse—unfavorable.

adze—a metal cutting tool like an axe, but with a blade at right angles at the handle.

aeration—the process of mixing with air or oxygen.

aerial ropeway system—a transport system using a permanent set of ropes or cables to carry goods over rough terrain.

aerobic composting—process of decomposition while oxygen is present.

aerodynamics—the study of the motion of air and the forces acting on bodies in motion (such as windmill blades).

aesthetic—related to taste or beauty.

afforestation—the process of planting trees in an area that does not have them.

agile—quick; able to move quickly.

agitator-type washing machine—a machine in which the dirt is loosened from clothing through the up-and-down motion of one or more pistons or other parts, which serve to move the water.

agribusiness—a term describing highly centralized agriculture operations in developed countries, where agriculture is a business rather than a way of life.

agronomist—a person who is trained in the science and economics of crop production and the management of farm land.

ailment—illness; health problem.

airfoil—the shape of an airplane wing or a wind generator blade; designed for high-speed movement through air.

algae—small water plants, valuable as a protein source and animal feed or raw material for a methane digester.

algae bloom—the uncontrolled growth of algae in a pond.

alien—foreign.

alienating—causing loss of sense of purpose.

alkaline—having a high level of soluble salts; this can make agriculture difficult.

alkali-puddled clay—a building material; clay is mixed with water and lime to create an easily-shaped material that is durable.

alleviate—to make less hard to bear; to lighten or relieve.

allied—joined together for a common purpose.

all-inclusive—complete; covering all parts or aspects.

allocation—the amount of something set aside for a particular purpose.

alloy—a metal made of a mixture of two or more common metals.

alternator—a machine for changing mechanical energy into electrical energy; a kind of generator that initially produces alternating current.

all-terrain vehicle—a heavy-duty vehicle especially designed to operate in rough and wet terrain (including hills, swamps, and creeks).

aluminized Mylar—a very strong thin sheet of plastic material coated with aluminum.

amateur—a person who is not a professional.

ambient—surrounding, on all sides.

ambitious—demanding great effort, skill or enterprise.

ambivalent—undecided.

amenities--comforts.

amenities in the workshop—special tools in the workshop.

ammeter—an instrument which measures the strength of an electric current in the form of amperes (amps).

amortize—to gradually pay off a debt.

ample—plenty.

anaerobic fermentation—fermentation in the absence of air or oxygen.

analysis—breaking a problem or question down into parts.

ancestral—of anything regarded as prior to a later thing.

anecdote—a short account of some happening.

anemia—a condition in which there is a reduction in the number of red blood cells or of the total amount of hemoglobin in the blood stream, resulting in weakness.

anemometer— a simple device that is used to measure wind speed.

angle iron—pieces of iron or steel with a cross-sectional shape like the letter "L".

animal husbandry—a branch of agriculture concerned with the raising of animals.

animal power gear—a gear that converts the power of a horse or other animal walking in a circle into the high-speed motion of a drive shaft, used to operate equipment (such as a thresher).

anodize—to coat with a protective film using electric current.

antecedent—any happening or thing prior to another.

anvil—a heavy steel block on which metal is pounded for shaping (blacksmith's tool).

aperture—the opening in a camera or telescope through which light passes into the lens.

apiary—a place where bees are kept.

apparatus— equipment.

appliance—a small device for performing a specific task; in the U.S., especially household devices that use electricity.

aquaculture—the raising of fish and other marine organisms.

aquarium—a glass-walled container for fish and other animals and plants, which allows careful observation of their behavior.

aquatic—having to do with water (ponds, streams, oceans).

arable land—land which can be farmed.

arbitrary (arbitrarily)— without reason.

arc welder—a kind of welding machine that uses an electric current passing across a gap to produce the necessary heat.

Archimedes' screw—a waterlifting device that has a screw-shaped rotating blade and axle inside a cylinder.

arid—dry.

armature—the iron core with wire wound around it, in a generator, alternator, or electric motor.

array—a regular arrangement or series.

artisan—craftsperson, artist.

aspirations—hopes, desires for the future.

aspirator—a device for moving air or fluids by suction.

assimilation—the process of becoming part of something.

astute— accurate; showing a clever mind.

attached greenhouse—a solar greenhouse attached to a house, where it helps in heating by acting as a solar collector.

attributable to—due to, caused by.

auger—a tool for boring holes.

authoritarian—characterized by unquestioning obedience to authority, as that of a dictator, rather than individual freedom of action.

auxiliary—extra, reserve.

auxiliary generating equipment— additional electric generating equipment; for example, a unit that can be used during periods when there is no wind to operate a wind generator.

axial-flow turbine—a turbine in which water flows parallel to the axis.

B

backlash—a strong political reaction resulting from fear or resentment of a movement.

backslide—to slide backwards, failing to fully implement a political promise.

backward—from earlier times, not modern.

bacteriological—related to the study of tiny life forms present in all organic matter.

bagasse—the part of sugar cane that is left after the cane has been crushed and the juice has been removed.

baled hay—hay that has been compressed into bundles and tied.

ballyhoo—noise and hollering.

band saw—a saw that has a long narrow continuous band for a blade; the band travels in one direction only, rotating around several wheels.

banish—to send away permanently.

barefoot doctors—local health workers doing preventive medicine and basic health care without lengthy medical training or expensive equipment; originated as a description of local health workers in China.

barometer—an instrument for measuring atmospheric pressure; anything that indicates change.

barrel staves—narrow, curved strips of wood which form the sides of a wooden barrel.

baseboard heating—a space heating system which radiates heat from panels on the wall near the floor.

batch process (methane digester)—a system in which the digester is loaded only at the beginning of a digestion cycle; gas production varies considerably during the digestion period.

BB shells—pieces of metal which serve as a case for steel balls in ball bearings.

beaker—a glass container used in scientific experiments.

bearing—any part of a machine on which another part revolves.

becak—pedicab; three-wheeled taxi (Indonesia).

bellows—a blacksmith's device for forcing air into a fire to increase the rate of fuel consumption and thus the temperature.

belt sander—a machine with a long abrasive belt that travels around two or more rotating cylinders, the belt is used for sanding and smoothing rough pieces of wood.

bemo—small transport vehicle in Indonesia.

benign—not dangerous; not causing damage or hurt.

bevel gear—a gear wheel meshed with another so that their shafts are at an angle of less than 180 degrees.

biased—unfairly affected or directed; not fair, prejudiced.

bicycle caliper brake—a bicycle hand-operated brake that has two arms that can be forced to rub on the rim of the wheel to slow the bicycle.

bicycle hub—the center of the wheel which revolves around the axle.

bicycle sprocket—a gear.

bikeway—path or lane reserved for bicycle use only.

bilharzia—see schistosomiasis.

bi-metal strip—a device made of two strips of different metals that expand at different rates when heated; the strip bends or curls when heated.

biodegradable—capable of being decomposed by bacterial action.

biogas—see methane gas.

biogas plant—see methane digester.

biological control—control of insects and other pests using natural means (predators competitors, bacteria); non-chemical methods.

biomass—the total amount of living organisms in a particular area or volume.

biomass energy—energy from biological sources.

biotic—of life, or caused by living organisms.

bit—the cutting edge of a tool.

bloat—to swell.

block and tackle—a set of pulleys and ropes for hauling and lifting.

blueprint—a large set of detailed plans.

board feet—a unit of measure of lumber equal to a board one foot in length on two sides and one inch thick.

bona fide— real; made in good faith.

borehole— hole drilled in the earth to make a well.

borne out—proved to be true or accurate.

botany—a branch of biology that deals with plants.

bow saw—a saw operated by a foot treadle with an overhead bow which acts as a spring mechanism; together they pull the saw blade up and down.

brace—a support; also a tool into which a drill bit or auger is inserted for drilling.

brackish— water with a heavy salt content, such as in inland seas.

brazing—to bond two pieces of metal using a metal rod with a lower melting temperature than either of the pieces to be connected; usually uses copper wire, and can be done with a small propane torch.

breastshot (breast) water wheel—a water wheel driven by water entering near the midpoint of the wheel.

bridle—a head harness for guiding a horse.

brittle—easily broken.

broadcast sower—a device which spreads seeds over a small area by throwing them through the air.

brunt— the major portion of negative consequences.

BTU—British Thermal Unit, a measure of heat energy; specifically, the amount of heat required to raise the temperature of one pound of water one degree Fahrenheit.

buffer—a machine for polishing metal.

bulk— greatest part.

bungalow—a small house with a porch.

bunsen burner— a simple gas burner.

burlap—coarse material used to make sacks and bags, usually made out of jute; also called "gunny sacks."

bushing—a round lining for an opening, used to limit the size of the opening, resist wear, or serve as a guide.

butyl rubber basin liner—a kind of plastic sheet used to prevent liquid from leaking through a basin.

byproduct—other or additional product.

C

cable plow—a plowing system in which a lightweight plow is pulled across a field by cable instead of by a tractor or draft animal.

cadre—a local-level leader and motivator.

calcium chloride—CaCl₂.

calculus—calculation; estimation.

calibrated—carefully and correctly adjusted.

cam—a bump on a turning shaft which lifts or pushes.

campesinos—rural people (Spanish).

canning—the preservation of foods in tightly sealed cans or jars.

capital—money; or equipment that represents an investment in money.

capital formation—gathering resources and buying or making tools, equipment or buildings to be used in production.

capital-intensive—techniques that have a high equipment-to-labor ratio to accomplish a particular task; an automobile is a much more capital-intensive form of transportation than is a bicycle.

carbonized plant material—dry plant matter high in carbon content that will make a building material; straw, thatch, palm leaves.

carbon/nitrogen ratio—the proportion of carbon to nitrogen in the material being placed in a methane digester; there is a proper ratio that allows maximum gas production and a proper chemical reaction.

carburetor—that part of an engine in which air and fuel are mixed.

carding machine—a machine used to prepare cotton or wool for spinning.

cardiovascular—of the heart and the blood vessels.

carnivorous—meat-eating.

carrying capacity—amount of life or activity that the ecosystem can support.

caseharden—to harden the outer layer of a piece of metal.

cash crop—a crop that is produced for sale rather than for consumption by the farm family.

casting (verb)—the process of making products from a mold, usually using hot molten (liquid) metal.

casting (noun)—a product made from a mold; the result of the above process.

catalyst—something which acts to help a process take place.

catalyze—to act as a stimulus in causing something.

caulking (caulking compound)—a filling material used to make a boat or other object "watertight" so that water cannot enter or escape.

cellulose—the bulky or fibrous part of plants, consisting of natural sugars.

centralize—to concentrate the power or authority of a central organization; to gather together; to focus on a center.

centrifuge—a spinning machine used to separate particles of different density.

certified—having a license issued by an authority, proving the ability to do something.

chaff—the seed coverings and other material separated from the grain during threshing.

chaff cutter—a tool which is used to chop dry vegetative materials such as straw into small pieces.

chain pump—a pump with an endless chain passing over a wheel at the top and entering a pipe below the water; it is fitted with discs which lift the water through the pipe.

chainsaw—a portable power saw that has teeth linked together to form an endless chain.

channel iron—pieces of iron or steel which have the cross-sectional shape of a channel.

charitable—kind and generous in giving money or help to those in need.

chassis—the part of a motor vehicle that includes the frame, suspension system, wheels, steering mechanism and so forth, but not the body or engine.

chemical coagulation—bringing together suspended particles in water by adding a chemical.

chisel—a tool for cutting grooves or shavings from wood or metal.

chlorination—purifying water by adding tiny amounts of the chemical chlorine to it.

chromatography—the process of separating the elements in a mixture by having a solution flow through a column of absorbent material on which the different substances are separated into distinct bands.

chronic—happening again and again.

churn—a container in which milk or cream is beaten to form butter.

circuit board—an electrical system laid out on a board for use in teaching.

circuitry—the elements of an electrical system.

circular sump—a circular pit lined with bricks, cement, or other material to hold wet material without losing the moisture.

cited— noted, identified.

clarify—make clear.

clear-cutting—cutting down all of the trees and plants.

climatology— the study of weather patterns.

clods— large dried pieces of soil that must be broken up before planting.

clogged— blocked or stopped flow.

closed loop—in a solar energy system, using water or another liquid to move heat from a collector to a storage area, and then returning the same liquid to the collector.

coalition—a group of organizations that agree to cooperate.

coefficients of transmission of heat— generally accepted statistics about the rate at which heat will move through different materials.

coercive—based on the use of force.

cogs—the teeth on the rim of a wheel, for transmitting or receiving motion by fitting between the teeth of another wheel.

coherent—fitting together well; making sense.

collaboration— working together.

collaborative— from working together.

collateral— something of value owned by a borrower, such as a house or land, used as a guarantee to a lender that a debt will be paid; if the debt is not paid, the lender takes the collateral as payment.

colleague—a fellow worker in the same profession.

color patina— surface color of metal, caused by the hardening process in blacksmithing, or long exposure to air.

combat—fight.

combustion—the process of burning.

commencing—beginning.

commend—to praise; to favorably point to.

commutator—in a generator or electric motor, a revolving part that collects the electric current from, or distributes it to, the brushes.

compacted—compressed and packed firmly together.

companion planting—a strategy used in intensive gardening in which different plants are raised next to each other to take advantage of nitrogen-fixation, insect-repelling properties, shade, etc.

compatible—going together well; fitting together well.

compelling—convincing, persuasive.

compensated—paid.

compendium—collection, compilation, summary.

composting—a method for breaking down organic solids (such as leaves, straw and manure) into easily used fertilizer.

compost toilet—a waste disposal system in which wastes break down to become fertilizer.

compounding—adding to.

comprehensive—including all aspects.

compression—being pushed or squeezed together.

compulsory— required.

computing—figuring out using numbers.

concave—curved inward, like a bowl.

concerted—concentrated, deliberate, vigorous.

concientizacion—a group discussion process aimed at creating an expanded awareness of the factors that keep people poor, and stimulating action for change.

condensation—the process whereby water vapor or another gas changes into a liquid as its temperature drops.

condenser—a device for converting a gas into a liquid.

conduit tube—lightweight metal tube usually used for protecting electrical wires.

configuration—arrangement of parts.

congealed—become solid or firm.

conical—shaped like a cone.

connecting rod—a rod connecting by back and forth motion two or more moving parts of a machine; for example, the connecting rod between the crankshaft and piston in an automobile engine.

conscientious—very careful and consistent.

consensus—decision-making by a group in which all members participate and are satisfied with the outcome.

constraints—limits; problems.

construed—understood, interpreted.

contacts (electricity)—metal points which when touching allow electricity to flow through a circuit.

containment—where animals are held inside.

contamination—dirtying or poisoning.

continuous process (methane digester)—a system in which the digester has a small amount of material added each day; gas production remains fairly constant.

continuity—the act of proceeding smoothly over time; ongoing.

contour—an imaginary line around the side of a hill that maintains the same elevation.

convergence—combining; coming or flowing together.

converter—a device employing mechanical rotation for changing electrical energy from one form to another.

convey—communicate.

conveying—communicating, showing.

cooper—someone who makes or repairs wooden barrels.

cope—to deal with problems effectively.

coppicing—the controlled production of small trees repeatedly from the same stumps (root systems).

copra—coconut meat dried for storage and transport; used to produce coconut oil.

corn (maize) sheller—a tool used to remove the kernels (seeds) from pieces of corn.

corollary—a proposition related to one that has been proven correct.

corrode—to eat into or wear away gradually, as by rusting or the action of chemicals.

corrosive—causing the wearing away of metal or other material by rusting or the action of chemicals.

corrugated—having parallel grooves and ridges.

corrupt—dishonest in handling money; using influence unfairly.

counter-sink—a tool used to drive a nail or screw below the surface of a piece of wood.

counterweight—a weight equal to another, used to balance it.

crankshaft—a shaft used to transfer rotational motion into up-and-down motion; or the reverse.

crannies— small cracks.

creativity—the ability to use the imagination and invent.

creosote—unburned gas from a wood fire that has condensed to form a sticky, dark substance.

crop diversification—the practice of growing a variety of plant crops within a particular area; opposite of "monoculture."

crop duster—a device for spreading pesticides or herbicides in the form of dust or spray.

crop-lien system—a system in which a future crop is sold at a low price to store owners or other middlepeople, in order to acquire credit for essential purchases by a farm family.

crop rotation—a system of growing successive crops that have different nutrient requirements, thereby preventing soil depletion, and breaking disease cycles.

cross fertilization—stimulation and improvement through exchange (of ideas).

cross-flow turbine—a wheel with curved vanes driven by the pressure of water flowing through it, and in which the water acts on the vanes twice, once while entering and once while leaving the turbine.

crucible—a container used to hold metal while it is being melted.

cube (math)—the product of multiplying a number by itself three times. The cube of the number 2 is 8 ($2 \times 2 \times 2 = 8$).

culmination—the highest point, the climax.

cultivator—an implement to loosen the soil and remove weeds while crops are growing.

cultivating—the process of loosening the soil and removing weeds while crops are growing.

culture plates—glass microscope slide plates used to observe blood samples and other very tiny materials.

culvert—a drain that passes under a road, railroad, footpath, etc.

curing (cement)—physical processing with water to help the cement reach its maximum strength.

curing (fish)—to preserve by chemical or physical processing.

curing (hides or skins)—to preserve by chemical or physical processing for future use.

current regulator—an electrical device which controls the level of current (amperes) passing through an electrical circuit.

curricula—plural of curriculum.

curriculum—the set of concepts being taught in a class.

currier—a worker who treats leather.

cutical (insect)—skin or covering of an insect.

cutlery—knives; tools used for eating.

cutout—a switch which cuts the electric circuit to a windgenerator under two conditions: 1) windspeed too low to charge the batteries, and 2) windspeed so high that electrical output threatens to damage the system.

cycle rickshaw—pedicab, three-wheeled taxi.

cyclist—a person riding a bicycle.

cynical—antisocial; believing that all people's actions are based on selfishness, and thus basing one's own actions on selfishness as well.

cyst—a growth in the skin.

D

damper—a piece of metal used to control the flow of air and hot gases in a stove.

Darrieus rotor—a vertical-axis windmachine that has long thin blades in the shape of loops, connected at the top and bottom of the axle; often called the "eggbeater" windmill because of its appearance.

data bank—a place where information is collected and stored for later use.

data processing—a method for evaluating and using information, usually by means of a computer.

dawn on—become clear to.

debilitating—making weak.

debit—amount to be subtracted.

debris—rough, broken bits of material left after a war or other disaster.

debt servicing—interest paid on a loan.

decentralization—a shift in the patterns of decision-making and production so that these activities go on in many more places than before.

decentralize—to break up a concentration of governmental decision-making, industry or population, and distribute it more evenly.

decomposition (bacterial)—the chemical breakdown of organic matter by microorganisms.

decorative—of interest due to its appearance only.

decoy—a plant which attracts insects away from other, more valuable plants.

deduced—realized; understood.

deep litter bedding—straw, leaves, or wood shavings used in a deep layer to cover the bottom of a chicken coop.

defecation—the act of passing human waste out of the body.

deficit—the amount by which a sum of money is less than the required amount.

deflector—a device that can be used to change the direction of a flow of water in a turbine to reduce the power produced.

deforestation—the destruction of forests.

degradation—making worse; becoming less usable.

dehydrate—to remove water from fruits and vegetables for preservation (drying).

dehydration—the draining of fluids from the body through diarrhea or perspiration dangerous if the fluids are not replaced.

demoralizing—discouraging.

demystify—to remove the mystery from; to make something understandable.

depletion—using up.

deplore—to regard as unfortunate.

derive—obtain, get.

desertification—the creation of deserts.

destitute—very poor.

detention time—the time period that incoming material is retained in a methane digester for processing.

deterioration—the process of becoming worse.

determinant—cause.

detract—undermine, reduce, subtract.

devastated—having suffered great destruction.

diagnosis—the process of deciding the nature of a diseased condition by examination of the symptoms.

dialects—different forms of a language; local languages.

dialogue—conversation; talking between two people or groups.

diaphragm pump—a pump which moves water through the alternating expansion and contraction of a chamber.

diarrhea—excessive looseness and frequency of bowel movements.

diatribe—a bitter, abusive criticism.

die—a metalworking cutting tool, e.g. for cutting screw-threads in a steel rod.

diesel set—an electric generator driven by a diesel engine.

dietary—related to what a person eats.

differential—an arrangement of gears connecting two axles in the same line and dividing the driving force between them, but allowing one axle to turn faster than the other when necessary; it is used in the rear axles of automobiles to permit a difference in the speeds of the two wheels while turning corners; also has the characteristic that the shaft comes in at a 90-degree angle to the axle, and does not turn at the same rpm.

differentiate—show difference among or between; separate.

diffraction—the breaking up of a ray of light into the colors of the spectrum.

diffusionist—an approach to technological change in which new techniques chosen by central agencies are spread, concentrating on community leaders.

digestion—the process by which organic materials are decomposed by the action of bacteria, producing gas and fertilizer.

digression—a wandering from the main subject.

dilemma—problem for which a solution is not evident.

diligence— hard working, responsibility.

direct gain—solar energy that enters a building without the use of collectors.

discharge—release.

discredit—to show reasons for disbelief.

disinfectant—a substance which cleans and kills disease-causing organisms.

dismantle—take apart.

dispel—remove, clear away.

dispersed—spread out.

disposable income—that portion of an income which can be spent.

dissecting tool—a tool used in separating the parts of an animal or plant.

dissemination—spread.

dissolution—breaking apart; breakdown.

distill—carefully select the essential elements of; evaporate and condense.

distilled water—water that has been evaporated and condensed so that all chemicals and salts have been removed; pure H₂O.

diversified—having many different activities or components.

divert—to move water or resources away from their normal channels.

dogmatic—closely following the rules, unwilling to listen to other ideas.

donor—a group that provides funds.

dosage—the exact amount of a medicine to be given at one time.

double-acting pump—a pump designed so that water is lifted during both the up and down strokes of a piston or diaphragm.

double-digging—a technique used in intensive gardening in which the topsoil is removed, the subsoil is loosened, and the topsoil is then replaced.

dowel—a round length of wood used to join two other pieces of wood.

drag (aerodynamics)—the slowing force acting on a blade or wing moving through air.

drainage—the removal of surface water.

draught—British spelling of draft.

draught chain—a heavy chain used to pull objects, such as harrows.

draw-knife—a two-handled knife used in making precise cuts in wood.

drill press—a machine for drilling holes in metal or wood.

drive shaft—a shaft that transmits motion or power, as from the transmission to the rear axle of an automobile.

dropper—a glass or plastic tube used to pick up and transfer drops of liquid.

drought—an abnormally long period of time with lower than normal annual rainfall.

drudgery—hard, boring work.

dry cell battery—a battery that uses dry chemical activity for storage of electricity; cannot be recharged.

dry steam—high-temperature steam which contains little moisture.

dubious—doubtful; uncertain.

dung—animal waste, manure, shit, excreta.

duplicate—to copy; to do again.

dynamic—moving, changing.

dynamo—see generator.

dynapod—a basic pedal-power unit that can be attached to small machines.

dwindles—gets smaller quickly.

E

earth auger—a device for drilling narrow diameter holes for wells.

earthen—made of earth.

ecologically-sound—any approach which fully considers and does not affect the natural balance of the environment and ecosystem.

economies of scale—savings that come with increasing size of a business or activity.

ecosystem—a system made up of a community of people, animals, plants and bacteria, and the physical and chemical environment with which it is connected.

edible—that which can be eaten.

effluent—material or waste flowing out.

eke out—scrape together.

electrical conduit pipe—lightweight metal tubing used to protect electrical wires.

electric grid—system of electric lines which distribute and regulate electricity in a community.

electrolysis—the process of changing an electrolyte by passing an electric current through it.

electrolyte—a liquid or solution which conducts electricity and deposits a metal coating; used in electroplating.

electromagnet—a core of material that becomes a magnet when electricity is passed through a coil of wire around it.

electromagnetic device—a core of magnetic material surrounded by a coil or wire through which an electric current is passed to magnetize the core; used in switches.

electronic governor—a device which switches part of the electric current produced by a turbine away from the main line (for example, to heat water) when the electric demand falls; this allows the turbine to be run at a constant speed, avoiding the need for an expensive governor to regulate the amount of water flowing through the turbine as electric demand changes.

electroplate—to coat with metal using electricity passed through a solution.

elicit—to draw out (a response).

emery stone—a stone for grinding the edges of tools to sharpen them.

empirical—based on practical experience and observation rather than theory.

emulsified asphalt—asphalt in liquid form, containing some kind of solvent which breaks it into tiny drops.

endeavors—efforts, projects.

endorse—recommend.

energy-gobbling American homes— homes built in North America that consume enormous amounts of energy in the form of gas and electricity.

enhance—improve, make better.

enteric pathogens—organisms causing disease in the intestine.

entrepreneur—someone who sees an opportunity to start a new enterprise or activity; businessperson.

entrepreneurial—related to undertaking the risks and management of a new enterprise or activity.

environment—the physical and biological surroundings.

environmentally-sound—see ecologically-sound.

envisage— imagine.

epidemic—a disease that is spreading rapidly among many individuals in a community at the same time.

epoxy—liquid material which hardens in the air; used in glues.

equate—to consider the same.

equitable—fair, equal for all.

erosion—the wearing away of land, soil, and other earth formations by wind, water, or ice.

escalating— rising, increasing.

escapement mechanism (clock)—the special gearing inside a clock that allows a sprocket to turn one notch at a time.

ethanol—alcohol made from grain or other vegetable.

euphemistically called—given a nice name.

evaporation—the process whereby water changes from a liquid to a vapor and disappears into the air.

exacerbate—make worse.

excerpt—a piece taken from a longer article or book.

exclusion—the leaving out of something.

excreta—human or animal waste matter; shit.

existential—involving awareness of being a free individual.

exotic—highly unusual; not part of daily life.

expediting—to speed up.

explicit—directly, obviously.

exponential—rapidly increasing.

extraction—the process of taking something out.

extractive—something that is drawn out or removed.

extrapolation—a conclusion reached by estimating beyond a known range.

extruded—to be forced out.

eyebolt—a bolt which has one circular end through which a piece of wire or rope can be passed.

F

fabricate—make, construct.

facilitate—enable, help to happen.

fad—a temporarily popular activity.

fall prey—become a victim; be taken advantage of.

fallible—possibly wrong; capable of making mistakes.

fallow land—land not planted in a crop for a growing season, to allow improvement in soil fertility.

farrier—a blacksmith who makes horseshoes (metal bands) and attaches them to horses' hooves.

feasible— possible, practical.

feathering mechanism—a mechanism on a windmill which in strong winds turns the blades increasingly out of the wind; this slows the windmill and protects it from damage.

fecal coliform bacteria—microscopic (tiny) organisms in human waste which can cause sickness.

fecal matter—solid human waste; shit.

feed grinder—a tool used to grind food into very small pieces so that fish or other animals can eat it.

fencerow—a row of bushes forming a fence.

fermentation—the breakdown of complex molecules in an organic material, caused by a bacteria; action of yeast making vinegar or alcohol.

ferrocement—cement-sand concrete reinforced by wire mesh.

fiber—any substance that can be separated into threads for spinning, weaving.

fiberglass—glass in the form of small fibers (similar to hairs), used in making insulation and harder structures such as boats.

fibrous insulation (local)—insulation made of local plant or animal materials such as coconut husks or animal hair.

field (electricity)—magnetic forces created by an electric current; important in the operation of a generator or alternator.

field wash—soil erosion caused by the flow of water.

firebreak—a strip of land on which trees and other plants have been removed, to prevent the spread of forest fires.

firebrick—special brick that will not break at high temperatures.

flagstone—a hard stone that splits into flat pieces.

flametrapp device—a unit to prevent the flame from backing up along a gas pipeline towards the source.

flange—a rim for attachment to another part, usually on a pipe or a wheel.

flannel board—a board on which scenes and processes can be illustrated for an audience; the flannel holds the movable pieces in place.

flap valve pump—a simple lowlift hand pump with a valve on top but no piston; same as inertia pump.

flat plate collector—a glass- or plastic-covered metal panel which traps the solar energy that falls on it; this heat is then transferred by a water or air system for hot water heating or home heating.

flaws—mistakes.

flow—the amount of water that moves past a point in a given amount of time; often measured in liters per second.

flow regulator—a device that controls the amount of water flowing through a turbine, to match the power needed at any moment.

fluctuations—variations.

flue—a pipe through which smoke or hot air passes.

flue duct—an opening to a flue which can be regulated to affect the amount of air passing through; this has an effect of regulating the rate of fuel consumption and the temperature in a fireplace or kiln.

fluorescent tube— an electric light bulb that uses a tube of fluoride gas instead of a wire filament; usually 2.5 times as efficient as a standard electric light bulb—this means that a 40-watt fluorescent tube provides as much light as a 100-watt electric bulb.

flywheel—a heavy, rotating wheel used to moderate any variations in the speed of the machinery with which it revolves.

foam composite—an industrialized lightweight material.

focal point—the central point at which activities are directed and effects are felt.

fodder—plant food for animals, such as leaves and straw.

foliage—plant growth.

forage—food for domestic animals; to search for this food.

forage crops—crops valuable as animal feed.

foreign exchange—money in the form of foreign currency that can be used to buy things from outside the country.

forerunner—one which came before.

forge—a blacksmith's furnace for heating iron or steel hot enough so that it can be shaped by pounding.

format—general arrangement.

formica—rigid plastic product.

formulation—a theory or plan.

forum—a place where discussion and exchange of ideas can take place.

fossil fuel—coal, oil, natural gas.

foundation (building)—the base on which a structure rests; usually made of concrete, stone, or blocks, and positioned partially underground.

foundry (iron)—a workshop where iron is melted and poured into molds to make tools.

foundryman (foundryperson)—a person who operates a foundry.

foyer—entryway, entry room.

fragile—delicate, easily broken.

fragments—breaks apart; small pieces.

freewheel (bicycle)—an arrangement in the rear hub which allows the rear gear to either drive the wheel or rotate freely when not being pedaled.

fringe areas—margin; edges.

frugal—economical; not wasteful.

fry—young fish.

fungicide—a substance used to kill fungus.

funnel—a device with a large opening on one end and a smaller opening on the other; used to pour liquid into a bottle, for example.

furrow—a shallow channel made in a field by a plow.

fuse—a wire or strip of easily melted metal placed in an electrical circuit; if the current becomes too strong, the metal melts, cutting the circuit before the entire wiring system is destroyed.

G

gabled roof—a roof with two sloping surfaces that meet at a line along the top in an inverted "V" shape.

galvanized—coated with zinc for protection from rust and corrosion.

galvanometer—an instrument for detecting and measuring a small electric current.

gas compression—the process of pressurizing gas so that it can be burned effectively.

gasogen—a stove-like device carried by a vehicle, producing gas through the partial burning of charcoal or wood.

gauze—a very thin, loosely-woven piece of cotton or silk.

gear down—to arrange gears or pulleys so that the original speed of rotation of a pedal-power unit, windmill, or water wheel is decreased; for example, to operate a winch.

gear up—to arrange gears or pulleys so that the original speed of rotation of a pedal-power unit, windmill, or water wheel is increased; for example this would be necessary to generate electricity.

generator—a machine for changing mechanical energy (such as the rotation of a windmill rotor) into electrical energy; has a stationary field and rotating armature, and produces direct current electricity.

genetics— the branch of biology that deals with heredity and variation in similar or related plants and animals.

germination—the process of starting to grow or sprout.

germplasm—the portion of the reproductive cells of an organism involved in heredity.

gestation—a development, as of a plan in the mind.

glaze—in ceramics, the coating given before the final firing (placement in the kiln for heat treatment); helps to seal the clay and adds color to the object.

glazing—the plastic or glass covering on a flat plate collector for solar water heating.

gleaned—picked out of.

gobar gas—methane gas (CH₄).

gouge—a tool like a chisel used to remove chunks of wood.

governor—a device that controls the amount of water flowing through a turbine, to match the power needed at any moment.

grain silo—a long-term storage chamber for grains; usually watertight and airtight to prevent spoilage and insect damage.

graphic ideation—the use of drawings to express and develop ideas.

grass-roots—local communities; where people live and work.

grass wilderness—a name for rain forest land which has had all of the trees and cover vegetation removed—the soil can only support the growth of hardy grasses, and is very difficult to restore to fertility; sometimes called a "green desert."

green manure—a crop which is plowed back under into the soil while still green, for its beneficial nitrogen-adding effect on the soil.

greenhouse—a glass- or plastic-covered building used to trap solar energy and protect plants from bugs, wind, rain, cold, evaporation, of moisture; allows a controlled environment.

greenhouse effect— the effect when heat from sunlight is trapped inside any closed container with a glass or plastic cover.

greywater— waste water from sinks or washing machines.

grindstone—a hard stone for grinding grain; or revolving stone for sharpening tools or shaping and polishing objects.

groundwater— water found underground, for example, in a well.

gutted—destroyed by fire.

guy wires—wires attached to a tower, for example, so that it cannot move or shake due to the wind.

gypsum board—a thin board formed of layers of gypsum plaster and paper, used on interior walls of buildings.

H

hacksaw—a handtool used to cut metal.

halter—a rope or strap for tying or leading an animal.

hamper—to make difficult; to hinder.

hands-on— practical.

handyman (handyperson) skills—general maintenance and repair skills.

haphazardly—in a disorganized way; carelessly.

hard-pressed—faced with a very difficult task.

hardware store—a kind of store in the United States which sells small tools, nuts and bolts, wire, plumbing parts, and miscellaneous metal parts with a wide variety of uses.

harnessing—using to advantage.

harrowing—using an agricultural implement with spikes or discs to break up and level plowed ground.

hatchery—place where fish are raised from eggs to small but viable size before being released to feed and grow larger.

have-nots—those who don't have enough wealth and income to live at an acceptable standard of living.

haves—those who have enough wealth and income to live relatively comfortably.

head—the total usable height water falls when used in a water wheel, turbine or hydraulic ram pump; or the distance water is lifted by a pump.

health auxiliaries—health workers who have undergone a short training period, but are not among the categories normally thought of as "professionals."

heat exchanger—any unit which is designed to pass heat from one fluid or material to another.

heat pump—a device that extracts heat from one location and distributes it to another, by expanding and contracting a fluid; one unit of energy used to operate the pump can allow four units of heat energy to be captured. Due to the unique characteristics of this kind of a pump, heat energy can actually be extracted from a cold area (such as the inside of a refrigerator) and distributed to a warmer area (which seems to defy the normal laws governing the movement of heat energy).

heater duct tape—a wide, strong variety of tape that serves to prevent heat loss in hot air pipes.

hedgerow—a row of bushes forming a boundary or fence.

helicak—motorized three-wheeled taxi (Indonesia).

helical—winding or circling around a center or pole while getting smaller and smaller; spiral.

hence—therefore, thus.

herbicide—a chemical substance used to kill or control weeds or other undesirable plants.

herbivores— animals that eat only plants.

heritage—something handed down from one's ancestors or the past.

hermetic storage—airtight storage.

hierarchical—having people arranged in order of rank.

high carbon steel—steel that has a relatively high carbon content and can be hardened for this reason.

high-tech—complicated technology that requires a specialized industrial base to produce and service it.

hinges—metal pieces that connect doors and windows to walls.

hipped roof—a roof with four sloping surfaces coming to a point at the top.

hitch—a connecting device.

hock, in—in debt, with house or land or other asset as collateral.

hoist—a device for raising another object; a kind of winch.

holdover—something staying on from an earlier period.

hollow block mold—a mold used to make hollow building blocks that maintain the strength of solid blocks but are lighter in weight.

honey extractor—a device that removes honey from honeycomb, usually by spinning.

hookworm—any of a number of small parasitic roundworms with hooks around the mouth, that infest the small intestine of humans, especially in tropical areas.

horticulture—the science and art of growing fruits, vegetables, shrubs, and flowers.

horticulturist—one who works with horticulture, especially in gardens or orchards.

host—a plant or animal that has a parasite living on or in it.

huller—a machine used to remove the outer coverings (hulls) from rice, peanuts or other agricultural products.

humidity—dampness or wetness in the air.

humility—humble attitude or approach; the opposite of pride or arrogance.

humus—black or brown decomposed organic matter.

hurdle—a portable frame made of branches, used as a temporary fence or enclosure.

hybrid—a new variety created by plant breeding, often producing higher yields but genetically sterile (the crop cannot be used for seed).

hydraulic—using water or other liquid.

hydraulic ram pump—a device used to pump water with no other power source; uses the impact of the water itself to pump a small portion of the water to a higher level than the original source.

hydraulics—the study of the properties of water and other liquids within engineering.

hydroelectric unit—a unit that generates electricity from falling water.

hydrology—the study of where water is and how it behaves.

hydroponics—the cultivation of plants without the use of soil.

hydropower—energy generated by falling water.

hypothesis—an unproved theory or proposition.

hypothetical—for example; imaginary.

I

ideologically-tainted—associated with an ideology and therefore appearing biased.

illiterate—unable to read or write.

illiterates—people who cannot read and/or write a language.

immunology—the branch of medicine dealing with immunity to disease and biological reactions such as allergies.

impacted soil—soil which has been compressed to make it firmer.

impaled—pierced through with something pointed.

impenetrable—cannot be entered.

imperative—the evidence that some action must be taken; an urge; necessity.

impinge—affect.

implicit—suggested or understood though not plainly stated.

imposition—hardship or burden forced from outside.

imprinting—a learning mechanism operating very early in the life of an animal in which a stimulus creates a behavior pattern that is remembered.

improvisation—something made with the tools and materials at hand to fill an immediate need.

improvise—to solve a problem using what is available.

inadequacy—not enough; not good enough.

incandescent light bulb—a light bulb that glows due to intense heat caused by electricity passing through a special wire coil.

incentive—something that stimulates one to take action or work harder.

income disparity—the difference or gap between high and low incomes.

income stratification—the division of a community or nation into several very different income levels.

incremental—involving small changes or improvements.

incubator—a special compartment used to keep chicken eggs or premature babies at a warm temperature.

indigenous—native; originally from an area.

indispensable—something that cannot be left out.

inertia pump— see flap valve pump.

infestation—attack by insects or other pests causing damage to crops.

infuse—to fill with something.

ingenuity—creative ability.

inherent(ly)—by itself; existing in someone or something as a natural quality.

inhibition—a mental process that restrains or suppresses an action.

injurious—harmful.

in kind—with goods or food, not money.

innumerable—too many to count.

inoculant bacteria—nitrogen-fixing bacteria that are spread on seeds to aid in later plant growth.

inoculation—the spreading of bacteria or other life forms into soil or water for beneficial growth; the injection of a disease agent into an animal or plant to build up an immunity to it.

input—what is put in.

insecticides—chemicals used to kill insects and therefore protect crops.

insolation—the amount of solar energy falling on an area, usually measured in BTUs per unit of area.

insulation—material used to reduce the transfer of heat through a wall, a roof, the back of a solar water heater, or the walls of a fireless cooker.

intake—the place where water enters the pump.

integrate—to mix together, to combine.

intensive methods—gardening techniques used on small plots to obtain high yields; the productive potential of the soil is increased through composting, aeration, and other techniques.

intercropping—planting two or more crops together.

intergranular spaces—the air spaces between the kernels in a pile of grain.

interlocking—linked together.

intermittent—an activity that starts and stops irregularly.

internal combustion engine—an engine in which the fuel is burned inside the chambers in which expansion takes place and moves the pistons.

inter-row cultivator—a tool that is used to remove weeds in several rows at once.

intertwining— interconnecting; linked.

intervening—entering and altering the normal flow of activities in a community.

intervention—a project begun by an outside agent or agency.

intolerable—unbearable; too painful to be endured.

intravenous—directly into a vein.

inventive—skilled in creating processes or mechanisms.

inventory—a detailed list.

invertebrates—spineless organisms.

inverter (electricity)—a device for converting direct current into alternating current by mechanical or electronic means.

invoked—referred to with reverence.

J

jacks and lifts—devices for raising objects using teeth or threads or a hydraulic system.

jargon—special words used and understood only within a particular field of activity.

jig—a guide for a tool that allows the repeated production of the same cut or part.

judicious—careful; well-placed.

juvenile—young.

K

keel—the primary timber or piece of steel that extends along the length of the bottom of a boat or ship.

keen—eager, strong.

kernel—a grain or seed, as of corn, wheat, or peanut.

khadi—a word used by Mahatma Gandhi referring to hand-spun cloth made by small cottage industries or individuals; also used to describe a policy based on village self-reliance stressing local production of food, clothing and other things to meet local needs.

kiln—a structure for the high-temperature treatment of bricks or pottery for hardening; or for the conversion of limestone to lime, used as a cement-like material in building; or for the reduction of wood to charcoal; or for the drying of wood.

kinetic energy—the energy of a body that results from its motion.

kink—a short twist, curl or bend in a rope, wire or chain.

knack—talent, ability.

Ku Klux Klan—a secret society of white men created in the United States following the Civil War in 1865, to reestablish and maintain white supremacy.

kymography—the study of wavelike motions or variations.

L

labor bottleneck—a period during the season when total output is limited by the fact that all available labor is being used; under these circumstances, labor-saving equipment will not destroy any jobs.

labor-intensive—techniques or projects that have a low capital-to-labor ratio.

laminated blade—a blade made of thin sheets of wood glued and pressed together.

landfill—area that has been filled in with a mixture of soil and solid waste.

landmark—something that marks an important place.

land reform—the redistribution of agricultural land by breaking up large landholdings and spreading them among all of the rural population.

larvae—the young worm-like form of an animal that changes structurally when it becomes an adult (e.g., caterpillars to butterflies).

laterite soil—a red soil formed by the decomposition of many kinds of rocks, and found especially in tropical rain forests.

lathe—a machine which turns wood or metal while it is being cut by a tool.

latitude—a distance measured in degrees, north or south of the equator.

lattice—pieces of wood interwoven together with spaces in between.

latrine—a device for depositing and isolating human waste.

leaching—the draining away of important nutrients by water action.

leap-frog—to jump over.

ledger—list of amounts of money.

legumes—plants that add nitrogen to the soil, such as soybeans or any other beans.

leguminous—of the family of plants that produce pods, to which peas and beans belong; legumes.

leprosy—a chronic and infectious disease caused by a bacterium that attacks the skin, flesh, nerves, etc.; characterized by white scaly scabs and wasting of body parts.

lever—a bar for prying or lifting.

liabilities—debts.

lift (aerodynamics)—the part of the total aerodynamic force acting in a direction perpendicular to the relative wind; opposes gravity in an airplane.

lift (waterpumping)—the height water is raised by a pump.

lime—calcium oxide; a cement-like substance used in building (for mortars and plasters).

lime kiln—a furnace used to make lime from coral or limestone.

limestone—a rock that is formed mainly by the accumulation of organic remains (such as shells or coral); consists mainly of calcium carbonate and is used extensively in building; yields lime when burned.

linkage mechanisms—connecting devices.

litmus paper—paper which is used in a simple chemical test for acidity or alkalinity of water or soil.

load (electricity)—the amount of power moving through an electrical circuit at any moment; or the device which is using this power; or the amount of power that a generator is producing.

loading rate—the amount and timing of loads of material being placed in a methane digester; important in obtaining an optimum concentration of solids.

lorry—truck.

low-impact technology— technology that fits into the human and biological environment with very little disruption or consumption of resources.

Luddites—a group of workers in England (1811-1816) who smashed new labor-saving textile equipment in protest against reduced wages and unemployment.

lunar—having to do with the moon.

lye (caustic soda)—a strong alkaline solution rich in potassium carbonate, leached from wood ashes; used in making soap.

M

machete—a large knife used for chopping brush and other heavy cutting.

machining—precision work on metal.

magnifying lens—a hand lens used to enlarge an image for closer inspection.

magnitude—size; amount.

malnutrition—inadequate nutrition.

manipulative—affecting events or other people without consulting them.

manometer—an instrument for measuring the pressure of gases.

manure—animal excreta; shit; dung.

manure spreader—a specially equipped wagon used to spread barnyard manure around the fields.

marine borers—small animals that live in sea water and eat holes in the hulls of ships and in the posts of docks.

mash—mixture of grain or other vegetable, yeast, and water.

masonite—thin board made from compressed wood fibers.

masonry—the fitting together of cut or formed blocks, bricks, or stones.

master—completely understand.

mattock—a tool for loosening the soil.

meager—very small.

mechanization—replacing handtools with machines.

media—various means of communication.

mediate—to act as a communication channel and intermediary between two people or groups.

medicated— containing drugs.

metabolizable energy—food energy which can be converted for use.

metal primer—a first protective layer of paint; usually to combat rust and build a base for additional layers of paint.

metal spinning—the technique of bending and shaping metal by pressing on it while it is turned on a lathe.

metaphorically—using words to create an image in the mind to illustrate an idea.

metazoa—any of a group of very small animals that have cells for different functions; many of these are parasites.

methane (biogas) digester—a device which through biological activity produces methane gas and fertilizer from animal manures and crop residues (such as straw and leaves).

methane gas (biogas)—a naturally occurring gas (CH₄) that can be produced using a methane gas digester; this gas burns with about 2/3 the level of BTU's of natural gas.

methane (biogas) plant—see methane digester.

methanol—alcohol made from wood.

methodology—a system of methods.

Michell water turbine—a turbine with curved vanes and hollow center; water passing through it propels the turbine both when entering and leaving; considered by many people to be the most practical easily constructed water turbine; operates well under a range of head and flow rates.

microbe—a microscopic organism.

microbiological action—activity by tiny organisms; for example, decomposition in the soil.

microhydroelectric turbines— small power systems with generators that use falling water to produce electricity, usually in the range of 1-40 kw of power.

micro-organism—a very tiny organism that can only be viewed through a microscope.

midwife—a woman who assists women in childbirth.

migrant—a farm worker who moves from place to place with the agricultural calendar.

mild steel—low-carbon steel; easily shaped but cannot be hardened.

millenia (millennia)—thousands of years.

milling machine—a metal-cutting machine in which the surface of the work is shaped by being moved past revolving toothed cutters.

mimeoed— printed on a low-cost machine called a "mimeograph" machine.

minimum tillage—an agricultural strategy in which plowing and cultivating are kept to a minimum to reduce soil erosion and encourage micro-organisms.

misconception—mistaken idea.

mitigate—reduce the negative effects of; make less bad or serious.

mocking—showing scorn, contempt or defiance.

mode—method, way of operating.

modes of transport— types of transport; bicycles, cars and buses are all different modes of transport.

modular—made in small units which can be combined as needed.

mold—a container in the shape of a desired product, used to form building blocks or for casting metal parts.

molecular model—a visible model of the structure of molecules, used in teaching.

momentum—the quantity of motion of a moving object, equal to mass times velocity.

monetary—involving money.

monitor—carefully observe.

monoculture—the practice of using only one crop variety in a given area; the crop tends to be more vulnerable to attack by pests and diseases than in a diversified crop area.

monolithic—solid, the same throughout; all of one kind.

moped—a motor-assisted bicycle.

moratorium—temporary halt.

morbidity—the level (incidence) of disease among a population; how many people are sick.

mordant—dye preservative to prevent fading.

mortar and pestle—a very hard bowl (mortar) in which softer substances are ground or pounded to a powder with a hard tool (pestle).

motive power—power to move something, as an engine.

motocross bikes—a heavy-duty bicycle popular among children in the United States, in imitation of motorcycles used in racing over hilly terrain on dirt tracks.

mowing machine—a farm machine with a reciprocating blade that cuts standing grain or grass.

mulch—a top covering of the soil consisting of organic materials (grass, compost, dead weeds) that serves to keep moisture in the soil and reduce weed growth.

multi-blade (fan) windmill—a windmill design, common on American farms, which has a large number of blades and is usually used for waterpumping.

multiple cropping—involving more than one crop.

mundane— common, unexciting, normal.

mutual—involving both or all sides.

Mylar—see aluminized Mylar.

mystification—the process of making something deliberately hard to understand.

N

natural calamity—a disaster such as a hurricane, flood, or forest fire.

natural phenomena—processes and events that occur normally in nature.

naught—nothing.

needs assessment—technique for deciding what people need.

networking—the process of making people with similar interests aware of each other, to increase communication and cooperation.

neutralize (magnetic field)—to stop the action of a magnetic field.

niche—place.

night soil—human excreta.

nipples (bicycle)—small threaded pieces of metal which serve to attach the spokes to the rim of a bicycle

nitriding—a process used in hardening forged steel.

nitrogenous fertilizer—fertilizer that contains nitrogen.

nodule—a small knot on a root that contains nitrogen-fixing bacteria.

nonconformist—one who does not do things in the way in which they are normally done.

nonviability— inability to be sustained.

nooks— small hidden places.

novice— beginner.

nozzle—a device at the end of a hose or pipe with which a stream of water can be controlled and directed.

nuisance—a person or thing causing trouble or inconvenience.

nurture—to raise or promote the development of.

nutrient—substance vital for growth and development of organisms, such as vitamins, fertilizers, protein, etc.

nutrient cycling—the process of moving nutrients through the agricultural system, from fodder to manure to fertilizer to additional plant growth, for maximum production and continued fertility.

nutritive—promoting health through a balanced diet.

O

obscure—relatively unknown.

obsolescence—the process of going out of use.

obtainable—available.

oil press—a tool used to crush oil-bearing vegetable material to extract the oil.

oilseed—any of a number of plants grown for the oil contained within their seeds.

oligarchy—a form of government in which the ruling power belongs to a few people, families, or groups.

opelet—small transport vehicle in Indonesia.

open loop—in solar energy systems, heating water or air by passing it through or over a collecting surface and then moving it to where it is needed.

opt— choose.

optical—having to do with the sense of sight.

optics—having to do with the properties of light.

optimize—to obtain the most efficient or maximum use of.

optimum—best.

organic—of, related to, or coming from living organisms.

organic agriculture—a form of agriculture that uses only natural materials and techniques.

organic gardening—a form of gardening that uses only natural materials and techniques.

organic manures—waste material from natural sources, such as animal dung and decaying plants.

organic solvent—liquid distilled from vegetable matter that can be used in cleaning.

outmoded—out of date; no longer useful.

output—what is produced.

outstripping—surpassing, increasing at a greater rate.

ova—eggs.

overhaul—to check thoroughly and make needed repairs.

overhead functions—tasks performed which enable other more basic activities to go on.

overriding—extremely important.

overshot water wheel—a water wheel driven by water entering near the top.

overuse—too much use.

oxy-acetylene welding—a welding system that uses compressed oxygen and acetylene gas to supply heat.

P

paddy weeder—a handtool used to remove weeds between the rows of rice plants in a paddy.

panacea—a cure for all problems.

papier-mache—a material made of paper and glue or flour that is easily shaped when wet, but dries hard.

parabola—a shape commonly used in solar cookers to focus sunlight on a small area so that it becomes very hot.

parabolic cylinder—a solar energy device with a cross-sectional shape of a parabola; sunlight is focused all along the length of a pipe or tube.

parabolic dish—a solar energy device shaped like a dish or bowl, having the characteristics of a parabola and focusing sunlight on a point or very small area.

paradigmatic—showing a model or pattern.

paramedical—of auxiliary medical personnel.

parasite—a plant or animal that lives on or in an organism of another species (the host) while usually doing harm.

parboiling (para-boiling)—a preliminary cooking process which serves to seal the outer surface of a grain such as rice.

parcelization—dividing up into small pieces.

pare—to cut away the outer covering of something.

particle board—board made of small pieces of wood or other material compressed together.

passive solar—any solar technology that uses natural energy flows in the materials and orientation of a building for heating, without the use of special collectors, pipes, and pumps.

patent—a license giving the inventor or patent owner the exclusive right to make, use or sell a particular invention for a period of years.

paternalistic—resembling the relationship a father has with his children.

pathogens—dangerous and harmful micro-organisms, such as bacteria and viruses; found in human and other wastes, responsible for spreading diseases.

pathological growth—growth or increase in size which is unhealthy, or which is not good for people.

peak power—the highest level of power that can be provided at any time.

pedal thresher—a lightweight machine operated by foot power, that is designed to be carried easily into the fields for use in threshing; mainly a wooden drum revolving at about 450 rpm, driven by a pedal and gearing system.

pedicab—a three-wheeled pedal-powered taxi.

peers—people who do the same work, or are of the same social status or age.

pelton impulse wheel—a kind of waterpower device which is driven by the impact of a jet of water; can be used to generate electricity.

pendulum—a weight hung from a fixed point so as to swing freely under the combined forces of gravity and momentum.

perennial—any plant that produces from the same root structure year after year; important in soil conservation.

perennial crops—crops in which individual plants continue to produce each season for a period of years.

perforated—having holes.

perseverance—continued, patient effort.

pertinent—significant, important.

pesticide—a chemical substance which kills plant pests (insects and rodents).

pesticide persistence—the tendency for pesticides to remain in the soil and water supply after use.

pharmaceuticals— drugs.

pharmacological—having to do with the science or study of the effects of drugs on living organisms.

phenomenally—amazingly.

philanthropic—showing a desire to help humankind by gifts to charitable institutions.

photovoltaic array—a set of photovoltaic cells.

photovoltaic cells—solar energy devices that directly convert solar energy into electricity.

physiologically—having to do with the functions and vital processes of living things.

pickling—a process for canning or bottling vegetables using vinegar.

pictorial—using pictures.

piecemeal—bit by bit; not organized very well.

pioneers—early workers in a new field.

pipe nipple—a pipe connector with threaded fittings.

pile—rammed earth; a construction technique in which earth is pounded inside movable forms to make walls.

piston pump—a pump which raises water by the up-and-down motion of a rod with a valve, on the inside of a cylinder.

pit latrine—a toilet in which human waste accumulates and is buried in a hole in the ground.

pivotal—most important.

plankton—microscopic animal and plant life found in water, used by fish for food.

planned obsolescence—a deliberate attempt by manufacturers to produce an item that will be rapidly out of style or no longer used.

plateau—a high flat or level place.

plight—a sad or dangerous situation.

plowshare—the cutting blade of a plow.

plumbing float control valve—a valve commonly used in flush toilets, which allows water to slowly fill a tank until the floating ball reaches the desired water level and the valve is closed; can also be used in a variety of other systems such as an oil-drum storage tank for a solar water heating unit.

pneumatic tires—air-filled tires.

pole saw—a saw operated by a foot treadle with an overhead pole which acts as a spring mechanism; together they pull the saw blade up and down.

pollination—the act of transferring pollen between the parts of a flower; important in the production of fruits and vegetables, carried out by bees and other insects.

polyethylene—a plastic material used in sheets and waterpipes.

poly-phase electric motor—a motor driven by more than one alternating current.

polythene—British spelling of polyethylene, a plastic used in sheeting.

polyvinylchloride—a plastic material used in waterpipes.

porridge—a soft food made of cereal grains boiled in water or milk until thick.

potable water—safe drinking water.

potter's kick wheel (potter's wheel)—a tool used to form cups, bowls and other round objects; a heavy flywheel on the bottom allows smooth work on the clay.

poultry—chickens and similar birds raised for meat.

power co-efficient—the percentage of the total available power in the wind that a windmachine can capture at any specific windspeed.

power drive—the system of spinning shafts and gears used in transmitting mechanical energy.

power output—the amount of mechanical or electrical power produced.

power tiller—a small engine-driven machine for plowing or breaking the soil; usually has two wheels.

pragmatic—practical, taking into account organizational constraints and capabilities; for example, when deciding a path of action; taken too far, being "pragmatic" can mean taking the easier path so that fundamental problems are never addressed.

precarious—dangerous, insecure

precision file guide—a tool that aids in sharpening chainsaw blades.

predators—animals that eat other animals.

prejudice—an opinion held in disregard of facts that contradict it.

preliminary—introductory; coming before or leading up to the main action.

privy—a kind of latrine; usually a platform with a hole over a pit, for isolation of human waste.

producer-gas engine—an engine which runs on gas produced in a charcoal-making process.

product differentiation—marketing technique of making products appear to be different from other similar products with the same function.

production version—the final form of a product to be made in large quantities for the market.

productivity—the amount of product created or work accomplished per unit of something (usually labor time) invested.

proliferation—spread, increase.

prolific—producing a large amount.

propagandistic—involving the uncritical promotion of particular ideas and doctrines.

propagation—the reproduction or multiplication of a plant or animal.

propane torch—a hand-held torch that burns propane gas; used for workshop activities.

propeller—a device with two or more twisted blades that rotate with the hub in which they are mounted.

protective canopy—a plant cover, in the form of shrubs or trees, which protects the soil from the harsh effect of sun, wind and rain; particularly important in tropical forests that receive heavy rainfall.

prototype—an experimental version for testing.

protozoa—any of a group of microscopic animals made up of a single cell or group of identical cells; many of these are parasites.

protracted—extended.

prudent—wise.

pulp—a mixture of ground-up wood from which paper is made.

pulse—any member of the legume family (peas, beans, lentils, etc.).

punch—a tool for making holes.

punitive legislation—laws that declare certain activities illegal and create punishments for these activities.

pvc pipe—polyvinyl chloride (plastic) pipe made from petroleum products.

Q

qualitative—not numerical; involving kind or type.

quantitative—numerical, involving numbers or quantities.

quarried stones—pieces of rock cut out from under the earth.

quasi—somewhat; to a certain extent.

R

radial-flow turbine—a turbine in which water flows around the axis.

radiating plate—a metal plate which serves to pass the heat from a fire underneath to the area or substance being heated; prevents direct contact with the flames and smoke of the fire

rammed earth—a technique of building construction in which earth is pounded inside movable forms to make walls.

rapacious—taking by force, greedy.

rarity—a very unusual thing or event.

rasp—coarse file for removing wood or metal.

rationale—reasons used to support a decision or conclusion.

rattan—a long slender tough stem that comes from a climbing palm and is used in making furniture.

ravine—a small narrow valley with steep sides, created by a stream.

reallocation—spending in a different place, or for a different purpose.

realm—area.

reamer—a tool used to smooth out or enlarge the inside of a pipe.

reaming—work using a reamer to smooth out or enlarge the inside of a pipe.

reap—to harvest.

reaping machine—a machine that cuts grain in the fields.

rearing—raising.

reclamation—a reclaiming; especially the recovery of wasteland or desert by irrigation, drainage, replanting, etc.

recoup—make up for something lost; recover.

rectifier—a device that converts alternating current into direct current.

recurring—happening again and again.

recycling—reusing; processing in order to reuse material.

reforestation—the process of planting trees in an area that once had them.

refraction—the bending of a ray of light as it passes from one medium to another.

refractory cement—cement that will survive high temperatures.

refractory materials—heat-resistant materials.

reinforcing rod (rebar)—metal rod used to increase the strength of concrete.

refuge—a place of protection against storms, etc.

rehabilitation—repair or rebuilding.

rehydration—the process of restoring the body to its natural balance of fluids.

rejuvenate—to revive.

relay—an electromagnetic device for automatic control that is operated by variation in conditions of an electric current; used to operate other devices (such as switches).

remote—far away.

render—make.

rendering fat—melting fat until it becomes a liquid.

renewable energy—energy from sunlight, wind, falling water, or biological sources that is continually recharged by the sun.

renovation—the process of repairing and rebuilding.

repatriated—sent back to the country from which it came.

repudiate—to deny; to refuse to accept or support.

reputable—respectable.

reservoir—a body of water held behind a dam.

resin—a solid or honey-like substance from plants.

resistor—a coil of wire used in an electrical system to provide resistance and thus heat.

respiratory system—the system of organs, including the lungs, involved in the exchange of oxygen and carbon dioxide with the environment.

restoration—a putting back into a former, normal condition.

retort—a container in which a material is heated to extract gases.

retrogression—a return to a less complex or worse condition.

revegetation—the process of replanting in an area that has lost most of its plant life.

rhetorical—having unnecessary, exaggerated language or style in making a point.

riddled—filled; filled with holes.

rigorous—very strict, thoroughly accurate.

ripping chain—a tool used on a chainsaw for cutting along the length of a log, instead of across it.

ripple tank apparatus—a device made of glass and filled with water, used to show wave motion.

rivals—is similar to.

rivet—a metal pin used to bind two pieces of metal together.

riveting— binding of metal to metal using rivets pounded on both sides.

roadbed—the foundation of a road.

romantic— without a basis in fact.

roof pond—a shallow reservoir of water on a roof used to collect, store, and release energy to heat or cool a building.

root crops— crops in which the roots are the parts that are eaten; for example, potatoes and carrots.

rotating wooden drum washing machine—a machine that loosens the dirt in clothing by the rotating action of a drum or barrel inside a tub of water.

rote—(to memorize) mechanically and unthinkingly.

rototiller—a small motorized hand-tractor or cultivator usually with rotating blades.

routine—normal, regular, common.

rpm—revolutions per minute.

rubble—damaged building material.

rudimentary—primitive, simple.

rudiments—the elementary steps or information.

runoff agriculture—a form of cultivation totally dependent upon water which can be channeled onto the field during and immediately following rains.

S

sail cloth—cloth normally used on sailing ships.

sail windmill—a kind of windmill that uses removable cloth sails (usually 4 to 8) as the blades.

sailwing windmill—a kind of windmill that has a small number (usually 2 or 3) of blades that are generally made of cloth and are shaped like an airfoil (the shape of an airplane wing).

saline water—water with a high level of salts.

salinity—level of salt content.

sandcrete blocks— building blocks made of sand and cement.

sanitation—the use of hygienic measures such as the drainage and disposal of sewage.

savannah—a treeless plain found in tropical and subtropical regions; a transition zone between rain forest and desert.

Savonius rotor—a wind machine with a vertical axis, usually made from split oil drums.

sawyer—someone whose job is to saw wood.

scanty—too little, not enough.

schematic drawings—drawings that show the complete layout of a system with all of its connecting parts.

schistosome—a parasite that causes schistosomiasis when it enters and lives in the human body; spends part of its life in the body of a snail.

schistosomiasis—a tropical disease that involves problems in the liver, nervous system, urinary bladder, or lungs; spread by a parasite

scholarly—showing much knowledge, accuracy, and critical ability; presented in standard form acceptable to professors and other academics.

screen printing—a method of printing through a piece of silk or other fine cloth on which all parts not to be printed have been coated with film that prevents ink from passing through.

scrutiny—careful examination.

scum controlling device—a mechanism that is used to break up the thick layer of materials that rises to the surface in a methane digester; this layer tends to prevent the production of gas.

scythe—a handtool with a long handle and metal blade, used to cut grain or grass.

sealant—a substance such as wax, plastic or silicone used for sealing, to make a substance airtight or watertight.

seam—the line formed by sewing together two pieces of material.

seasonal—taking place only during certain seasons of the year.

sedimentation—accumulation of mud, sand, and gravel carried by water.

seedbed—the earth in which seeds are planted in a garden.

seed dressing drum—a rotating drum in which seeds are mixed with fertilizers or pesticides.

seed drill—a tool which places seeds into the ground, usually by dropping them through a tube.

seed propagation—the production of seeds for future use.

segregate—keep divided.

self-actualizing—helping people to know themselves better.

semantic—related to meaning in language, the relationship between words and the concepts they represent.

sentimental—romantic, unrealistic, emotional.

septic tanks—large tanks for settling and decomposing human waste.

sewage—human waste material carried away by water.

shanty—substandard crude shelter.

shearing force—a force tending to cause a piece of metal tubing, for example to separate in a direction perpendicular to the tubing.

shears—heavy scissors for cutting sheet metal.

shelterbelt—a barrier zone of trees or shrubs planted to protect crops and soil from strong winds and erosion.

shingles—overlapping pieces of wood or other material used in roofing.

shoot—a new growth, sprout or twig.

shop tools—tools that are commonly found only in small workshops; usually mechanized.

short out (electricity)—to allow the electric current to go in a shorter path, thus preventing the normal action of a circuit, by connecting two wires that are not normally connected.

shrouded windmill—a windmill with a funnel around the outside edge of the swept area which forces wind from a larger area to pass through the blades.

sickle—a handtool with a curved metal blade for cutting grain or grass.

sieve—a device with small holes or screen to separate out larger particles while allowing smaller ones to pass through.

silhouette—outline against a light.

silicone sealant—a plastic compound used to seal a container so that water cannot enter or escape from it.

silk-screen printing—see screen printing.

silt—small particles of soil intermediate in size between sand and clay.

simultaneous—at the same time.

siting—choosing the location for.

sizing—determining the proper size; or separating according to size (for example, "sizing peanuts").

skewed—distorted in one direction.

skilsaw—a hand-held electric saw with a circular blade.

skylight—a glass or plastic piece of a roof which allows light to enter a house or a room.

slang—popular words not found in dictionaries.

slash and burn shifting cultivation—the practice of cutting and burning forest vegetation to open land for subsistence agriculture in tropical countries; usually by small farmers; the soil is exhausted within five years and the farmers must move on to clear more forest.

slit—a narrow cut or crack through which light can pass.

sludge—the outflow of a digester or sewage treatment plant.

sludge treatment ponds—basins in which sewage, animal manures, and other wastes are broken down.

slurry—diluted waste material as it is placed into a digester.

smallholder—someone who owns only a small amount of land or some product.

smoker—a device used in beekeeping; a hand-bellows with some burning material which produces smoke to force the bees to move out of or into the hive.

soakway—a place for waste water to sink into the ground.

social account—the net economic effects of an investment or other action, measured as they affect an entire community or nation; which investments and policy measures appear wise may be different in social account than when only individual investment-profit effects are considered.

sod houses—houses with roofs or walls made from strips of soil still containing the roots of grass.

soil amendment—a substance that aids plant growth indirectly by improving the condition of the soil.

soil cement—a mixture of soil and a small amount of cement used in making blocks without sand for construction purposes.

soil conservation—a policy of maintaining and promoting the health and fertility of the soil; for example, by planting trees to prevent erosion.

solar distillation—a process in which solar energy is trapped and used to evaporate water, which then condenses as pure water that can be used for drinking.

solar greenhouse—a greenhouse that depends primarily on solar energy for heating; differs from a conventional greenhouse that uses fossil fuel energy to control the inside temperature.

solar radiation—energy from the sun.

soldering—a technique of lightweight metal bonding, by melting a soft metal at a lower temperature than in brazing.

soldering iron—a small tool used in lightweight metal bonding.

Solomon—a very wise king and judge in the Bible.

solvent—a liquid substance capable of dissolving or dispersing another substance.

sowing—planting seed, especially by throwing (broadcast sowing) or use of a mechanical metered device.

space heating—heating the air in a house, room or small area.

spar—long pole which supports a sail.

sparingly—in small quantity.

sparse—not common; few.

spawning—producing or depositing eggs, sperm or young.

species diversity—the number of different species in an area.

specific gravity—the ratio of the weight or mass of a given volume of a substance to that of an equal volume of water (liquids and solids) or air (gases).

spectrum—range.

spinning wheel—a device used to make cloth thread.

spinoff—a secondary development.

spokes—the bars or wires extending between the hub and rim of a bicycle or cart wheel.

spontaneous—happening suddenly or without an obvious cause.

spoon-tilt hammer—a device that has a hammer at one end, a balancing point, and a bucket-shaped (spoon-shaped) hollow at the other end; the bucket is slowly filled by a continuous flow of water from a pipe or stream; as the water fills this end it begins to drop down, which raises the hammer end; the water is able to escape when the bucket tilts too far, and the hammer then falls; the hammer can be used in a blacksmith's shop, and the same principle has been used to pound rice to remove the hulls.

sporadic— occasional, irregular.

spring leaf—high carbon steel, tempered to be very hard and respond like a spring; used in automobile springs.

sprung frame—a frame mounted on springs.

squatters—people who have built shelters and houses on land they do not own.

squatter settlements—areas where poor people have moved in to live on previously unoccupied land.

stabilized soil—soil that has had emulsified asphalt, cement or other material added to make it resist erosion; used to make blocks for construction.

stabilizing agent—a substance that binds or makes firm, such as cement or lime; usually used in making building blocks.

stagnant—unchanging; lifeless.

staples—basic foods such as grains, beans, and tubers.

state-of-the-art—latest, most current, most technically advanced.

static—unmoving.

stator—the fixed outside part of an electric motor or generator.

staves—see barrel staves.

stereotype—a fixed concept about a group of people or an idea.

sterile— free from living germs.

stewardship—taking care of in a responsible manner to preserve quality and benefits over the long term.

stratification—the division into groups of different rank, status, or income.

stricken—affected by something painful or sickening.

striving—attempting; trying hard.

stroboscope—a revolving disc with holes around the edge which allow flashes of light to pass through it at regular intervals.

stucco—a coating for the outside walls of buildings, applied like plaster.

styrofoam—an industrially created material that is used for insulation, floating objects, and packaging.

subscribe (to an opinion)—believe.

subservient—humbly submissive.

subsidy—a grant of money.

subsistence agriculture—a system of farming in which a family produces all or almost all of their own goods, including food, tools, cloths, etc.; there is usually not a significant surplus for sale.

subtropics—regions bordering on the tropics, having a nearly tropical climate.

suction pump—a pump which lifts liquids only by creating a vacuum above the liquid level; used to lift water but only to about 20-25 feet (33 feet is the theoretical maximum).

sugar cane crusher—a tool used to flatten sugar cane stalks and extract the juice which contains the sugar.

sundial—a clock that indicates the time of day using the shadows caused by the sun.

super helicak—small taxi (Indonesia).

superimpose—to place on top of.

superphosphate—a synthetic chemical fertilizer, made by treating bone or phosphate rock with sulfuric acid.

surging—rapidly increasing.

surpass—to be better than.

suspension bridge—a bridge that is hung from cables.

sustainable—that which can be continued indefinitely into the future.

swab—to clean with a small piece of cotton.

swampy areas—land that is always wet.

swell—increase greatly.

swelling soils—soils that expand and shrink under conditions of changing pressure, water content, or temperature.

swine—pigs.

symptoms—evidence of disease.

synchronous inverter—device for changing direct current.

synergy—parts or ideas working together.

synthetic—human-made; non-natural.

synthetic fertilizer—an artificial substance which helps plants grow and develop.

syringe—a medical device used with a needle to give injections.

T

table saw—a saw with a rotating circular blade that has a flat surface built around it like a table.

tabular—arranged in a table or chart.

tandem—a two-wheeled bicycle that has seats and pedals for two riders.

tanner—someone who tans (preserves) animal hides and skins.

tannery—a place where animal hides and skins are preserved.

tapered—becoming smaller at one end.

tap-root—a large main root found on many plants.

tarpaper—a thick paper product soaked in asphalt; used for waterproofing in roofs and walls.

technical fix—an attempt to solve a social, political or economic problem through a purely technical change, which may simply postpone the problem.

technocratic—of government in which all economic resources and the social system are controlled by scientists and engineers.

technological determinism—a theoretical point of view which holds that technological change is the primary cause of political and social change.

tempeh—an Indonesian food made from soybeans inoculated with bacteria.

temper—harden.

temperate zone—either of two zones of the earth between the tropics and the polar regions.

tenant—someone who pays rent to use a house or piece of land.

tension—being pulled apart.

tenure—the act of holding property.

tenurial—related to holding property.

terminology—words from a particular field of activity.

terracing—the building of flat areas along contour lines of a hillside, to prevent soil erosion while allowing productive use of the land.

terrain—the surface of the land.

terrarium—a glass-walled container for small animals that allows careful observation of their behavior.

therapeutic—serving to cure, heal, or improve health.

thermal pollution—heat from a power plant or other source that can disturb the ecological balance.

thermal storage—heat storage during the warm or sunny parts of the day, for use during the colder parts of the night.

thermosiphon principle—the principle that heated liquids tend to rise; in a solar water heater, this principle can be used to enable circulation of water from a flat plate collector to a storage tank located above it, without the use of a pump.

thresher—a machine used to separate grain or beans from the unwanted straw or other plant material.

thriving—growing very well.

tiebars—strips of metal for securely fastening roofing pieces.

tie-ridging—a technique of field preparation in Africa, in which channels between ridges are periodically blocked by earth, to trap rainwater and prevent drainage.

tier—level.

tillage—the plowing of land.

tiller—a device for plowing the soil; a cultivator.

timescale—period of time during which an activity is planned or expected to take place.

tines—the teeth of a rake, harrow or cultivator.

tinkerer—a person who likes to make gadgets and inventions, but not in a serious manner.

tin snips—a tool similar to scissors, for cutting sheet metal.

tip-speed ratio—the ratio of the speed of the tip of a windmachine blade to the speed of the wind; a low tip-speed ratio (such as 1:1 in the Savonius rotor) at a moderate windspeed means the windmachine is better adapted to mechanical applications such as waterpumping; a high tip-speed ratio (such as 5:1 in a two-bladed windgenerator) at a moderate windspeed means the windmachine is better adapted to generating electricity.

tolerance—the amount of variation in the dimensions of parts that is acceptable when constructing a machine.

tongs—a tool used by blacksmiths to pick up hot pieces of metal.

toolbar—a frame to which different tools can be attached for various land preparation activities, such as plowing or cultivating.

topography—the surface features of a region.

torque—the force that acts to produce rotation.

torrid—very hot.

torsion—the act of turning or twisting.

totalitarian regime—a government in which one group maintains complete control under a dictatorship.

toxic chemicals—poisons which may be harmful to plants, animals and humans.

tragedy of the commons—the phenomenon that land, water, air and other things owned in common are frequently abused, polluted, or otherwise damaged, to the disadvantage of all.

trailer chassis—the frame of a trailer.

transaction—exchange of something for something else.

transfer pipette—a tube of glass or plastic used to move liquid from one container to another.

transformer—a device containing two or more coils of insulated wire that is used to change the voltage and amperage levels of an electric current.

transit level—an instrument for identifying a horizontal line or plane.

transmission loss—the amount of power lost between a turbine and the machinery it is operating; or electricity lost between the generator and the point of use.

trap—a plant which can eliminate harmful insects.

treadle—a foot-powered mechanism that converts an up-and-down motion of the foot on a board into a rotating motion on a machine; commonly seen on sewing machines.

trip-hammer—a heavy mechanical hammer that is regularly lifted and dropped; used in blacksmithing.

Trombe wall—a space heating system that involves a wall covered with glass that traps solar energy and circulates the heat through vents into the building.

tropics—the region of the earth lying between the Tropic of Cancer and the Tropic of Capricorn, marking the limits of the apparent north and south journey of the sun.

troubleshooting—seeking the source of a problem in a piece of equipment.

trowel (verb)—to apply mortar using a trowel (a flat handtool).

truss—a rigid framework of beams or bars for supporting a roof or bridge.

truss plates—metal plates attached to the beams that support a roof.

T-square—an instrument for drawing or cutting 90-degree angles.

tuberculosis—an infectious disease that affects the lungs.

tubers—plants such as sweet potatoes which can be reproduced by planting pieces of the roots.

tuft—a small piece of wool.

turbidity—cloudiness.

turbine—a wheel with curved vanes on a shaft, driven by the pressure of water.

turbulence (wind)—wildly irregular motion of air.

turnbuckle—a metal sleeve with opposite internal threads at each end, by turning it one can tighten or loosen two threaded rods coming together at that point.

twist bit—the cutting edge of a wood drill; has a twisted blade.

typhoon—hurricane

U

u-bolt—a bolt shaped like the letter "u".

undermining—removing the justification for.

undershot water wheel—a water wheel that is turned by water flowing underneath it; for example, by a small river.

unduly—unnecessarily.

unfettered—without restrictions.

unforeseen—unexpected.

unhampered—not restricted.

unicycle—a pedalled cycle having only one wheel.

unsubstantiated—undocumented.

updraft and downdraft kilns—the adjective refers to the direction of air movement through the kiln.

urea—a high nitrogen fertilizer made from animal wastes or natural gas using a high-technology, energy-intensive process.

urine—liquid human waste

V

vaccinate—to give an injection that produces immunity to a specific disease by causing the formation of antibodies.

validity—truth, accuracy.

vane—a thin flat or curved object that is rotated about an axis by a flow of water or wind; for example, in a windmill or water turbine.

vaporizing—converting from a liquid to a gas by heating.

vaulted roof—a roof in the shape of an arc.

veil—to hide.

velocity—speed.

ventilation—the circulation of air through a room or enclosed space.

verbiage—an excess of words beyond those needed to say what is meant.

verging on—bordering, approaching.

versatile—can function or be used in many different ways.

vertical axis—an axle or axis which runs in a vertical (up and down) motion.

vertical-axis water wheel—a water wheel driven by water coming through a channel and hitting in on one side; has a vertical axis instead of the usual horizontal axis found on water wheels.

vertical-axis windmill—a windmill such as the Savonius rotor which always faces the wind, regardless of what direction it comes from; this differs from the more common horizontal-axis windmills which must turn to face the wind.

vertical shaft kilns—relatively small kilns used in the production of cement, having a vertical main shaft, differing from the more capital-intensive rotary kilns.

viable—successful, possible, practical.

virus—any of a group of extremely small infective agents that cause disease in animals, people and plants.

vise—a workshop device used to clamp or hold objects.

vogue—popularity or fashion.

volatile gas—unburned, energy-containing gases in the smoke of a fire.

voltage—the electric potential between two points, expressed in volts; can be understood as the "pressure" forcing electricity through the lines similar to pressure in a water system.

voltage regulator— a simple electrical instrument that controls the voltage level of the current from generator to battery (as in an automobile or windgenerator system).

voltmeter—an instrument for measuring voltage.

volumeter—an instrument used to measure the volume of liquids and gases directly, and of solids by the amount of liquid they displace.

vulnerability—the state of being open to attack or damage.

vulnerable—easily hurt.

W

water-borne—carried by water.

water catchment—an apparatus for collecting and storing water.

water hammer—see spoon-tilt hammer.

waterproofing—applying a substance to protect an object from contact with water.

water seal privy (water seal toilet)—a human waste disposal system that has a passageway filled with water which prevents odors, gases, and disease organisms from returning through the passageway.

water turbine—a device powered by the reaction or impulse of a current of water subject to pressure; usually has curved blades; is used to generate electricity because it has a higher rpm than a water wheel.

water wheel—a wheel with buckets or paddles which allow it to be turned by falling water or water moving underneath.

weaning—the process of causing a young child to eat other foods than mother's milk.

weatherization—the process of sealing air leaks and insulating a house to reduce heat loss.

wed—join.

welding—high-temperature heavy-duty metal bonding; arc-welding uses heat created as an electric current passes across a small gap; oxyacetylene (carbide) welding uses the heat created by burning a mixture of oxygen and acetylene gas.

welding jig—a device used to hold metal that is being welded.

well rings—metal or concrete cylinders placed inside a well to prevent material from the walls from collapsing inward.

well-tuned—well-matched.

wheelwright—someone whose job is the making or repair of wheels or wheeled vehicles.

whole-heartedly— enthusiastically.

winch—a device for hauling, pulling, or raising another object, that allows the operator to slowly move something that he or she would normally not be able to move at all.

winch plow—a plow pulled across the field by a cable attached to a winch.

windbreak—a hedge, fence, or row of trees that serves as protection from wind.

windgenerator—a machine which uses wind power to generate electricity.

winding (wire)—a coil of wire; when electricity is passed through this coil a magnetic field is created, which can be used to operate switches.

windmachine—any kind of machine which gets its motion from the wind.

windmill—originally a machine which uses the wind to drive the grinding stones of a mill to make flour from grain; often used to refer to any kind of windmachine, particularly wind-powered machines for waterpumping.

windwheel—any kind of windmachine which has blades or arms in the shape of the spokes of a wheel.

winnower—a machine used to separate grain from hulls or straw.

wire mesh—wire or steel reinforcing bars in a woven pattern; used as reinforcement in ferrocement construction.

wither—to dry up.

wobbling—unsteady; unstable.

woodlot—land planted with trees grown for fuelwood.

workplace—the site of a job, in this context including a calculation of all supporting capital costs for tools.

Y

yurt—a traditional Mongolian dwelling.

