

Unit 20 Renewable Energy in Agriculture

* Glossary

Milling machine: a machine tool in which a horizontal arbor or vertical spindle rotates a cutting tool

Mine: a pit or tunnel from which minerals (as coal, gold, or diamonds) are taken

Electricity supply grid: an interconnected network for delivering electricity from suppliers to consumers

* Micro-hydropower

Flowing and falling water have potential energy. Hydropower comes from converting energy in flowing water into useful mechanical power by means of a water wheel or through a turbine. This power is converted into electricity using an electric generator or is used to run **milling machines** directly.

Hydropower technology has been with us for more than a century. In the late 19th and early 20th centuries many mills, **mines** and towns were built near water in order to have some form of power generation from small hydropower systems.

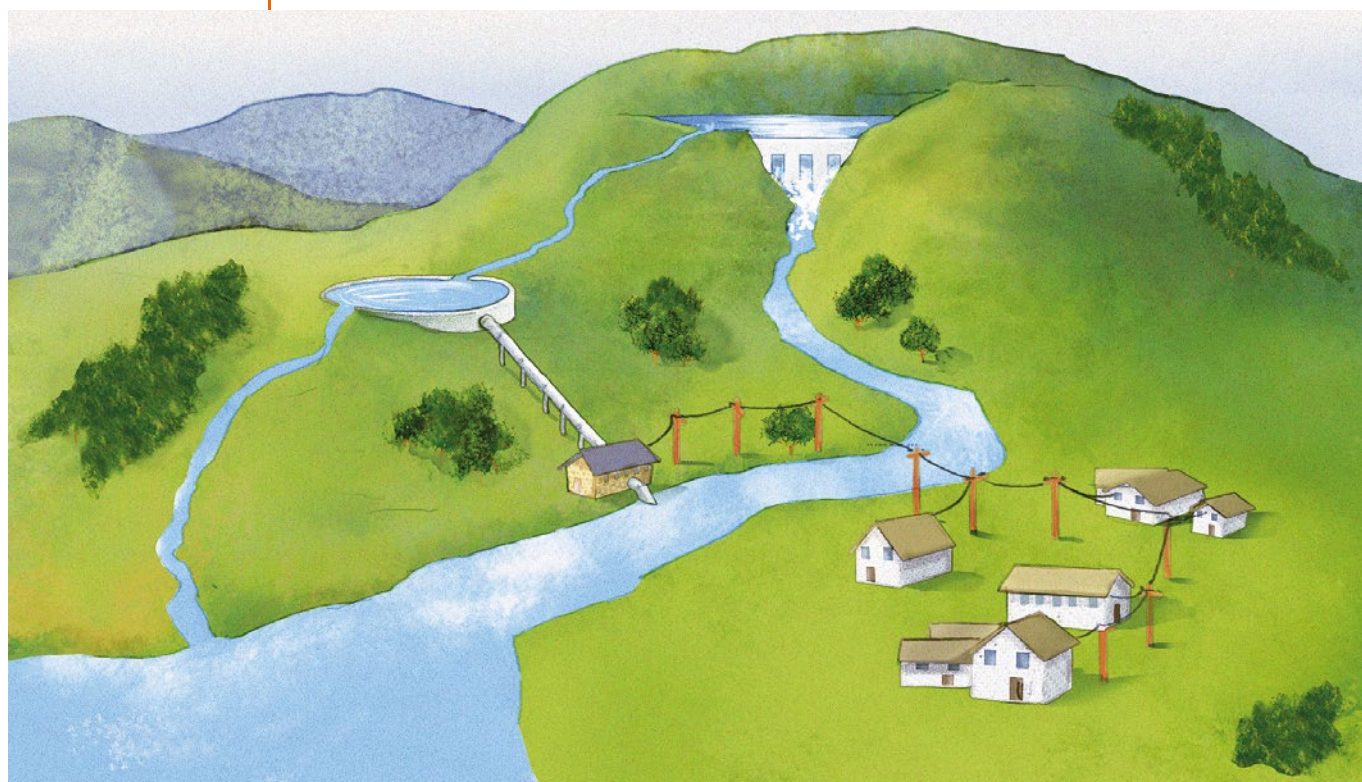
Micro-hydropower systems are relatively small power sources that are appropriate in most cases for individual users or groups of users who are independent of an **electricity supply grid**. Hydro-power systems are classified as large, medium, small, mini and micro according to their installed power generation capacity. Electrical power is measured in watts (W), kilowatts (kW) or megawatts (MW).

A micro-hydropower system is generally classified as having a generating capacity of less than 100 kW. Systems that have an installation capacity of between 100 kW and 1000 kW (1.0 MW) are referred to as mini-hydro.

Micro-hydro systems have the following components:

- a water turbine that converts the energy of flowing or falling water into mechanical energy that drives a generator, which generates electrical power – this is the heart of a micro-hydropower system;
- a control mechanism to provide stable electrical power;
- electrical transmission lines to deliver the electrical power to its destination.

(Adapted from: *Micro Hydropower Systems*, The Hydraulic Energy Program, www.agenergyia.org)





Understanding the text

1. Read the text and find verbs that are associated with the terms below.

- 1. water
- 2. energy
- 3. hydropower systems
- 4. a generator
- 5. electrical power

2. Read the text again and tick the topics mentioned.

- 1. Advantages of hydropower
- 2. Solar, wind and geothermal energy
- 3. History of hydropower technology
- 4. Micro-hydropower systems classification
- 5. Components of micro-hydropower systems
- 6. Micro-hydropower systems installation and maintenance

3. Fill in the grid with the correct information about micro-hydropower systems.

Component	Function
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