

# Select Definitions for Terms in Ag Data Collection Template

## ACTIVITY TEMPLATE

**Activity:** refers to any action that relates to a site. There are many **Activity Types**, as listed in the template, but the data you are collecting will usually be for a Project or a Study.

**Project:** an activity that results in the direct capture and destruction of methane. Anaerobic digestion installations are considered to be Projects

**Study:** an activity that involves collecting site-specific data in order to evaluate the possibility of a future project, to evaluate the performance of a current project, or to evaluate other aspects of the site or project

**Subcategory:** further describes the activity type. Projects do not have subcategories, but Studies do. Study subcategories include Pre-feasibility Studies, Feasibility Studies, Measurement Studies, or Other Studies.

**Pre-feasibility Study:** a broad analysis of site characteristics, such as the number of animals and type of manure management system, used to determine the type or types of methane reduction projects that would be most viable

**Feasibility Study:** more focused than a pre-feasibility study, typically analyzing both the technical and financial feasibility of a specific project type at a given site

**Measurement Study:** applies to performance evaluations, emission reduction verifications, or similar evaluations

**Status:** indicates what stage an activity is currently in.

For Projects, applicable status choices are Planned, Construction, Operational, Shutdown, Cancelled, or Unknown.

**Planned:** if a project has been determined to be feasible and is moving forward, but construction has not yet begun (for instance, there is a developer, contracts are being negotiated, etc.)

**Construction:** once construction has officially begun on a project, it is considered to be under construction until the digester is fully functional and methane is being captured

**Operational:** project is fully operational when gas is being consistently produced, captured and destroyed, either through flaring or some type of gas use

**Shutdown:** a project that was operational at one time but is no longer operating

**Cancelled:** a project that was planned or under construction but never became operational

For other activity types, status choices are Completed, On-going, and Not Started.

**Completed:** applies to activities that have concluded

**On-going:** applies to activities that have been started but are not yet finished or are continuing (as opposed to one-time occurrences or events)

**Not Started:** applies to activities that are planned but have not yet taken place

**Project Developer:** the primary organization responsible for implementing the project, sometimes retaining ownership of the digester, energy generated, and/or carbon credits produced

**Project End Use Type:** describes how the captured biogas is used. Some uses are clarified below:

**Gas Sales to Pipeline:** gas is sold and piped to another party for end use (typically the biogas must be treated to meet strict requirements before it can be added to the pipeline)

**Gas to LNG:** converting biogas to liquefied natural gas

**Gas to CNG:** converting biogas to compressed natural gas

**Flaring Assigned:** select only if *all* biogas is being flared (as opposed to the flare only being used for excess gas)

**Town Gas:** biogas from a local project is piped into a town or village, typically for heating or cooking purposes

## SITE TEMPLATE

**Site Type:** site types are defined as follows:

**Farm Scale:** the site comprises only one farm or household with livestock; that is, the digester is located at a farm or household and all of the digester influent is supplied on-site

**Facility Scale:** the site comprises only one agro-industrial facility (such as a distillery); that is, the digester is located at a facility and all of the digester influent is wastewater supplied on-site

**Multiple Farm/Facility:** more than one farm or agro-industrial facility is included in the site; that is, the digester is located at one farm or agro-industrial facility, but additional digester influent comes from neighboring farms, households, or agro-industrial facilities as well

**Centralized/Regional:** the site is entirely separate from any farms, households, or agro-industrial facilities; that is, the digester is built as a stand-alone facility that receives influent from nearby farms, households, or agro-industrial facilities

## AG PROJECT TEMPLATE

**Number of Animals:** the average annual animal population. Average annual animal populations for static populations (e.g., dairy cows) may be estimated by performing an animal inventory or review of facility records. Average annual animal populations for growing populations (e.g. meat animals such as beef and market swine) may be estimated using the average number of days each animal is kept at the facility and the number of animals produced annually, and an equation similar to Equation 10.1 in 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 4, Chapter 10:

$$AAP = \text{Days onsite} \times \left( \frac{\text{NAPA}}{365} \right)$$

Where:

AAP	=	Average annual animal population
Days onsite	=	Average number of days the animal is kept at the facility, by animal type.
NAPA	=	Number of animals produced annually

Animal types are defined as follows:

**Dairy Lactating:** mature, lactating dairy cows

**Dairy Dry:** mature dairy cows in the period between the end of lactation and calving

**Dairy Heifer:** dairy cow that has not produced a calf

**Beef Cattle:** refers to cattle raised for meat production (as opposed to dairy cattle)

**Swine Sows:** adult female pigs

**Swine Nursery Pigs:** weaned pigs that have not yet entered the growing phase

**Swine Boars:** uncastrated male pigs

**Swine Growers:** immature male or female pigs between weaning and finishing weights

**Swine Total:** total number of swine head

**Poultry:** broilers, layers, turkeys, ducks, or other domestic fowl

**Other:** any animals not included in the list above

**Baseline Waste Storage System:** indicates how manure is or would be stored in the absence of a digester

**Storage Tank:** A concrete or metal tank designed to store manure and wastewater until it can be utilized; storage tanks are not designed to treat manure

**Storage Pond:** an earthen basin designed to store manure and wastewater until it can be utilized; storage ponds are not designed to treat manure

**Storage Pit: Deep Pit:** a series of one or more pits where manure is collected until it is utilized or transferred to a storage or treatment structure; pit is considered a “deep pit” if emptied less frequently than once per month

**Storage Pit: Shallow Pit:** a series of one or more pits where manure is collected until it is utilized or transferred to a storage or treatment structure; pit is considered a “shallow pit” if emptied at least once per month

**Storage Lagoon:** a large holding or detention pond, usually with earthen dikes, used to contain wastewater while sedimentation and biological treatment or stabilization occur

**Storage Stack:** solid or dry manure scraped from a barn, feedlane, dry lot, or other similar surface and stored in a pile until it can be utilized

**Manure Collection Process:** describes how manure is collected from barns, feedlanes, dry lots, or milking centers. Terms are defined as follows:

**Dry lot:** a fenced area free of vegetation where the animals can move about freely

**Scrape or Vacuum:** manure collection methods that use a mechanical or other device to regularly remove manure from barns, buildings, dry lots, or other similar areas where manure is deposited

**Flush:** manure collection system that collects and transports manure using water

**Feedlane:** area where animals feed

**Milking Center:** facility where lactating cows are managed during milking, also referred to as a parlor

**Freestall Barn:** a totally or partially enclosed structure where animals are confined, but not in individual stalls

**Pull Plug Pit:** one or more shallow pits beneath slatted barn floors where manure is collected and stored for a short period of time (typically a week) until it is transferred outside to land application or a storage or treatment structure

**Deep Pit:** one or more pits beneath slatted barn floors where manure is collected and stored for at least one month; deep pits have more capacity than pull plug pits and are therefore able to store manure for longer periods of time

**Pit Recharge:** manure management system in which a pit is periodically drained by gravity to a lagoon, and then refilled with new liquid, usually recycled lagoon water

**Solids Separation Method:**

**Gravity:** usually involves a settling basin in which suspended solids separate from the liquid by sinking to the bottom

**Mechanical:** includes devices such as inclined screens, vibrating screens, belt presses, or screw presses

**Digester Type:**

**Covered Lagoon:** an anaerobic lagoon fitted with an impermeable, gas- and air-tight cover designed to capture biogas resulting from the decomposition of manure

**Plug Flow:** a constant volume, flow-through, controlled temperature biological treatment unit designed to maximize biological treatment, methane production, and odor control

**Complete Mix:** a controlled temperature, constant volume, mechanically mixed vessel designed to maximize biological treatment, methane production, and odor control

**Attached Media:** an anaerobic digester in which the microorganisms responsible for waste stabilization and biogas production are attached to some inert medium, also referred to as a fixed film digester; the waste is digested as it flows through the microorganisms

**Fixed Dome:** an anaerobic digester having a fixed, gas-collecting dome, usually made from concrete or bricks and mortar and built below-grade, common in China

**Bag Digester:** an anaerobic digester consisting of a tube or balloon made of flexible material, having a slurry inlet, a digested slurry outlet, and a gas outlet

**Floating Cover:** an anaerobic digester consisting of a cylindrical digester tank and a floating water-sealed cover, which acts as a gas storage chamber and can rise to accommodate the amount of gas being produced

**Effluent Storage and Use:** describes what is done with the solids and liquids after they exit the digester. Associated terms are defined as follows:

**Tank:** concrete or metal structure used to store liquid effluent before use or disposal

**Pond:** earthen basin used to store liquid effluent before use or disposal

**Stack:** separated solids stored in a pile before use or disposal

**On-site liquids disposal:** liquid effluent is land-applied or recycled at the site (e.g. recirculated through digester to maintain correct solids content, used as sulfur filter in biogas scrubber, etc.)

**Off-site liquids disposal:** liquid effluent is transported elsewhere for land-application or other disposal method

**On-site solids disposal:** digester solids are used on-site for bedding, fertilizer, or other uses

**Off-site solids disposal:** digester solids are sold or transported elsewhere for bedding, fertilizer, or other uses

**Biogas Use:**

**Cogeneration:** waste energy from electricity generation is captured and used to produce heat; for the purposes of our data collection, please select co-generation only if waste heat is being used for something *other* than maintaining digester temperature (e.g. heating household, providing hot water, drying solids, etc)

**Costs:**

**Total Capital Investment (TCI):** one-time costs paid for the installation of the digester system, after which only recurring operational or maintenance costs will be incurred; may include the cost of equipment, construction labor, contractor fees, or other start-up costs

**Operation and Maintenance (O&M) Cost:** annual cost to keep the digester system operating; may include labor, electricity, monitoring, annual inspections, repair, or other regularly incurred costs

**Utility Contract Type:**

**Surplus Sale:** arrangement where a farm produces electricity using a system that is directly connected to the utility, allowing the system to run at a constant output, regardless of farm demand; excess production is then sold to the utility at avoided cost (the cost the utility would have incurred had it supplied the power itself), and excess electricity consumption is purchased from the utility at the retail rate

**Sell All:** agreement where the utility continues to sell the farm all electricity requirements and then buys all the generator output

**Net Metering:** similar to surplus sale, net metering requires the farm's system to be directly connected to the utility and is a method of crediting customers for electricity that they generate in excess of their own consumption; if such customers generate more than they use in a billing period, their electric meter turns backwards to indicate their net excess generation; the net excess generation may be credited to their account (in many cases at the retail price), carried over to a future billing period, or ignored

**No Sale:** no electricity generated on-site is sold to a local utility