glossary

Air photographs or aerial photographs: Remote-sensing photographs taken from an airplane (source: IAPAD).

Asset allocation mapping (AAM): this enables communities to make informed decisions over the allocation of their territorial assets. To do this, they need not only to arrive at their own evaluations of these assets but also to understand the multiple values assigned to their assets by others: to map the ways in which assets are perceived, evaluated, imagined by an unfamiliar and mutating array of external interests (source: Peter Poole).

Attribute data: Information about a feature on a map or thematic information (source: IAPAD).

Base map: A map that contains geographical reference information on which attribute data may be plotted to make thematic maps (source: IAPAD).

Cartography: The art or science of making maps (source: IAPAD).

Cognitive map: a term introduced in the 30s by pioneer learning researcher, Edward Tolman, to describe what rats must have in their minds to successfully navigate mazes when routes are blocked or explored from different points. Although learning is from traversing routes, mental representations appear to integrate route experience into survey or overview knowledge. The term has been extended to humans to mean a schematic mental representation of the geographic world, usually the network of paths and nodes that enable navigation. The nature, coherence, flexibility, perspective, and accuracy of these representations are continuing topics of research.

Community mapping: Community maps often represent a socially or culturally distinct understanding of landscape and include information that is excluded from mainstream maps, which usually represent the views of the dominant sectors of society. This style of map can therefore pose alternatives to the languages and images of the existing power structures. Community maps often differ considerably from mainstream maps in content, appearance and methodology. Indicators used to recognise and denote community maps include the following:

- Community mapping is defined by the process of production.
- Community maps are planned around a consensus based goal and strategy for use and made with input from a community in an open and inclusive process.
- Community mapping is defined by the content of the maps, which depict local knowledge and information and are often aimed at addressing local issues. They contain the community's place names, symbols, and priority features and represent local knowledge systems.
- Community mapping is not necessarily defined by the level of compliance with formal cartographic conventions. Nor are they confined by formal media: a community map may be a part of a GIS or a drawing in the sand.

Community Information Systems (CIS) are map-based multimedia information systems in which local knowledge is documented by community members using digital video, digital photos and written text, stored on computers and managed and communicated through the interface of an interactive map (source: Jon Corbett).

Counter maps: Alternative maps, or 'counter-maps', greatly increase the power of people living in a mapped area to control representations of themselves and their claims to resources. Local people may exert control directly by making their own maps or entrust a representative of their choice, such as a local NGO, to perform the task. [...] Counter-maps thus have the potential for challenging the omissions of human settlements from forest maps, for contesting the homogenisation of space on political, zoning, or property maps, for altering the categories of land and forest management, and for expressing socio-spatial relationships rather than depicting abstract space in itself (Peluso, 1995). Counter-mapping can be used for alternative boundary-making and 'to depict strategies of resistance: where to block [...] unwise development, to identify landscapes that have been damaged, to describe alternatives to the incremental destruction of sustaining habitats' (Aberley, 1993:4)

Cultural mapping can be used for making intangible heritage and local and indigenous knowledge systems easily visible and understandable. It should be demand driven, contextualised and community owned and controlled. It should create intercultural dialogue and allow communities – and especially elders – to reflect on their own knowledge and listen to each other. Respectful cultural mapping can reinforce a community's consciousness of its specific cultural traditions, resources and institutions, and also of land use practices, education, health, conflict prevention etc. It should enable communities to be better prepared to express their rights, visions and priorities – especially when confronted with development

interventions initiated by a third party.
Digitise: To convert an image, such as a map into a form that a computer can store and manipulate through the use of special software (a computer programme). Digitising is usually done manually, with a digitising tablet, but simply scanning the image may be suitable for some purposes (source: IAPAD).
Ephemeral map: A temporary map such as a ground map. Intended to be kept for a short time only. This most basic mapmaking method consists of drawing maps on the ground. Informants use raw materials like soil, pebbles, sticks and leaves, to reproduce the physical and cultural landscapes in the manner they perceive them to be. Such ephemeral maps disappear in a puff of wind. Acquired knowledge is memorised by participants and mentally recomposed when needed (source: Rambaldi et al, 2005).
Ethics: (see practical ethics)
Geo-referenced: Refers to a map or photo that has been geographically corrected, so that every point on it shows absolute location. For example, air photos and satellite images are geo-referenced to correct for scale distortions inherent in the process of collecting data through remote sensing (source: IAPAD).
Geographic Information Systems (GIS): a computer-based system designed to collect, store, manage and analyse spatially referenced information and associated attribute data.
GIT (Geographic Information Technologies): a set of computer tools (hardware and software), techniques and geographic data used to collect, store, edit, query, manage, analyse and/or display geographically referenced information in order to map phenomena, understand spatial relationships among phenomena, derive new information, and facilitate geographic problem solving. Geographic Information Systems (GIS), the Global Positioning System (GPS), and satellite/aircraft remote sensing and imaging are examples of Geographic Information Technologies used for digital mapping, spatial analysis, and other applications requiring location-based information and analysis.
GPS (Global Positioning System): A system of artificial satellites and ground units that enables a user with a portable receiver to determine absolute locations with good accuracy (source: IAPAD).
Knowledge can be considered as how we understand, give meaning, perceive or interpret the world around us (Leeuwis, 2004). Knowledge is what we store in our mind and what leads us to take decisions, act and react to stimuli received from the external world. Knowledge is very subjective and builds up in everybody's mind through a continuous learning process involving, among others, concrete experiences, interaction and communication with others, observations and reflections, formation of concepts and their testing. Three types of knowledge can be distinguished:
• **Unconscious knowledge** is characterised by perceptions/motives that we are not aware of.
• **Tacit knowledge** corresponds to knowledge that we are not immediately aware of, on which we base our day-to-day actions. This type of knowledge can be elicited through in-depth discussions and interactive exercises including the use of 3D models, or mental maps.
• **Explicit knowledge** is the knowledge that we are aware of, have reflected upon and can easily capture in verbal, textual, physical or visual formats, and that transforms into information (source: IAPAD).
Legend: The part of a map (or an additional sheet) that explains what the symbols on the map mean (source: IAPAD).
Local knowledge: '…is the sum total of the knowledge and skills which people in a particular geographic area possess, and which enable them to get the most out of their natural environment. Most of this knowledge and these skills have been passed down from earlier generations, but individual men and women in each generation adapt and add to this body of knowledge in a constant adjustment to changing circumstance and environmental conditions' (source: IKDM, 1998).
Local spatial knowledge (LSK) '… describes home and action space, is innate and sustained knowledge about the land, identifies issues of immediate significance, and encodes the information about the environment in a language a region's inhabitants understand' (Duerden and Kuhn, 1996). It includes:
• **specific technical knowledge** known only (or in detail, primarily) to the local people, e.g. local knowledge of soils, plants, water sources, medicines. Similar to the concept of **indigenous technical knowledge (ITK).**
• **spatial knowledge** representing different viewpoints and understandings of local actors, (different from the dominant 'official' view). These different viewpoints can be reflected in **counter maps**.
• **mental maps**, which are not usually based on standard geometry.
• **spiritual or mystical spatial knowledge** associated with cultural

spaces, particularly with specific areas of land or resources. This may be interpreted as **cosmovisions**, which commonly incorporate the origin myths of indigenous, natural resource-dependent, cultures.

Map: A picture of the land, a map is a graphic representation, often two-dimensional, of some part (or all) of the Earth's surface. There are many different kinds of maps (source: IAPAD).

Map scale: The reduction needed to display a representation of the Earth's surface on a map. A statement of a measure on the map and the equivalent measure on the Earth's surface, often expressed as a representative fraction of distance, such as 1:10,000 (one unit of distance on the map represents 10,000 of the same units of distance on the Earth) (source: IAPAD).

Media: mass, interpersonal or hybrid media are basis devices that help to combine different communication channels for the 'transportation' and exchange of 'textual, visual, auditive, tactile and or olfactory signals. Hence different media can be used in the context of methods and methodologies (source: Leeuwis, 2004).

Mental maps: an alternative term for cognitive map. A map that represents the perceptions and knowledge that a person has of an area (source: IAPAD). Mental maps are associated with all cultures, ages, genders, types of people, though there are big cultural differences in how significant they are as spatial representations.

Methodologies are basically more or less a series of predefined steps, procedures and activities. Each step can involve the use or one or several methods. Methodologies are often known under a particular label or acronym, e.g. Participatory Rural Appraisal (PRA) (source: Leeuwis, 2004).

Methods can be seen as a particular mode of using media and media combinations within the context of a confined activity. A method can (but need not) be an element in a methodology. Examples of methods include a workshop, a discussion group, a farm visit, priority ranking etc. (an element of e.g. PRA) (source: Leeuwis, 2004).

Mosaicing: Mosaicing is the process of assembling a series of images and joining them together to form a continuous seamless photographic representation of the earth's surface. These can be done manually on aerial photos or digitally with remote sensing images and scanned aerial photos or digital aerial photos (source: Silika Tuivanuavou).

Orthophoto: A perspective aerial photograph contains image displacements caused by the tilting of the camera and terrain relief (topography). It does not have a uniform scale. Distances cannot be measured on a conventional aerial photograph like one can do on a map. In an orthophoto the effects of tilt and relief are removed from the aerial photograph by the rectification process. Therefore an orthophoto is a uniform-scale photograph or photographic map. Since an orthophoto has a uniform scale, it is possible to measure directly on it like other maps. An orthophoto may serve as a base map onto which other map information may be overlaid (source: U.S. Geological Survey).

Participatory 3D Modelling (P3DM): This method integrates indigenous spatial knowledge with data on elevation of the land and depth of the sea to produce stand-alone, scaled and geo-referenced relief models. Essentially based on indigenous spatial knowledge, land use and cover, and other features are depicted by informants on the model by the use of pushpins (points), yarns (lines) and paints (polygons). On completion, a scaled and geo-referenced grid is applied to facilitate data extraction or importation. Data depicted on the model are extracted, digitised and plotted. On completion of the exercise the model remains with the community (Rambaldi and Callosa-Tarr, 2002a)

PGIS (Participatory GIS): PGIS is an emergent practice in its own right. It is a result of merger between Participatory Learning and Action (PLA) methods with Geographic Information Technologies (GIT). PGIS facilitates the representation of local people's spatial knowledge using two- or three-dimensional maps. These map products can be used to facilitate decision-making processes, as well as support communication and community advocacy.

PGIS practice is geared towards community empowerment through tailored, demand-driven and user-friendly applications of these geo-spatial technologies. Good PGIS practice is flexible and adapts to different socio-cultural and biophysical environments. It often relies on the combination of 'expert' skills with local knowledge. Unlike traditional GIS applications, PGIS places control on access and use of culturally sensitive spatial data in the hands of those communities who generated it.

PGIS spatial analysis uses the functionality and data associated with GIS technology to explore community driven questions. In the process, local spatially referenced as well as non-

spatial data are integrated and analysed to support discussion and decision-making processes. The spatial analytic functionalities allow much easier and rapid analysis by the users, of e.g. time and cost functions, of separation and contiguity, and of the effects of barriers and buffers (source: Rambaldi et al, 2005).

PPGIS (Public Participation GIS) has evolved in the North as an intersection of participatory planning and Geographic Information Technologies and Systems (GIT&S). It makes use of increasingly sophisticated approaches. In inner cities and indigenous communities where technical competency and cost have been barriers to GIS implementation, PPGIS applications occur within several organisational arrangements including: community-university partnerships with inner city communities (Ghose 2001; Craig and Elwood; 1998); grassroots social organisations (Sieber 2001); and Internet-based PPGIS (Carver et. al. 2001; Craig et al., 2002). These organisations combine GIS with a host of modern communication technologies to facilitate dialogue and data usage among local groups. Equity issues are frequently addressed, particularly the spatial implications of 'environmental justice', usually closely associated with discriminatory zoning of ethnic groups (source: Rambaldi et al, 2005).

Practical ethics focuses on understanding and addressing difficult and controversial social issues arising in such fields as politics, economics, technology, healthcare, business, environmental conservation and education. Ethics more broadly investigates the meaning of the good, emphasising the role of values in raising and critically responding to questions of deep and abiding personal and common concern.

Practical ethics requires resource managers who engage in mapping to follow clear protocols for explaining complex consequences of mapping to rural communities. This protocol requires outside actors to communicate clearly with each community, clarifying the purpose/objectives of collecting information, agreeing with villagers on what information can be mapped, and explaining potential consequences of recording the community's spatial information on maps that can then be copied and distributed outside the community. Most importantly, outside facilitators must communicate to villagers that they can agree to accept or reject the mapping exercise.

Remote sensing: The process of gathering information about the Earth from a distance. Such data is commonly gathered by satellite or air (aerial) photography (source: IAPAD).

Resolution: The smallest distance or size of object that can be seen in an image (as acquired, for instance, through remote sensing) (source: IAPAD).

Scale mapping is a more sophisticated method of sketch mapping, aimed at generating geo-referenced data to facilitate discussions and allow community members to develop maps that can stand the scrutiny of adversarial parties. The method is based on effective selection of symbols and colours for depicting indigenous spatial knowledge on transparencies superimposed on a geo-coded and scaled map (source: Rambaldi et al, 2005).

Sketch map: A method for mapping on paper. A drawing of a place or area, not drawn with accurate or measured scale or direction. Features are depicted by the use of natural materials or more frequently by coloured marker pens or chalk. Participants usually have a range of choices regarding what materials to use for the drawing and how to visualise desired items. Features are exaggerated in size to match the importance participants attach to them. If properly facilitated, the process is documented and records are kept in terms of the keys necessary for interpreting depicted symbols. The lack of a consistent scale and geo-referencing of the data leaves room for subjective interpretation of the final map. A scale sketch map is a sketch given scale by fitting it onto a topographic map without a field survey (source: Rambaldi et al, 2005).

Spatial Information Technologies = Geographic Information Technologies

Technologies consist of widespread patterns of material and conceptual practices that embody and deploy particular strategic values and meanings (Hershock 1999). Technologies are complex systems promoting and institutionalising relational patterns aimed at realizing particular ends. Technologies cannot be value neutral, and do not occur in isolation from one another but in families or lineages (Shrader-Frechette and Westra 1997; Hershock 1999). Quote from Mapping Power: 2004 Fox et al.)

Tools are products of technological processes. They are used by individual persons, corporations, or nations, and are evaluated based on their task-specific utility. If tools do not work, we exchange them, improve them, adapt them, or discard them (source: Fox et al., 2004).

Tools and techniques are particular ways of operating a method.

Whether something is defined a s a method or a tool is often debatable; the boundaries are not sharp. A ranking exercise, for example, can involve drawing a matrix in the sand and using pebbles or stones as counters, or be conducted on a sheet of paper using stickers or markers. Similarly a farm visit in which farmers' problems are discussed can be conducted in various modes (persuasive, participatory, counselling, etc.) (source: Leeuwis, 2004).

Tenure mapping: this refers to a distinct genre of cartography that seems to have its roots in the cartographic evidence assembled in the early 1970s by Inuit and Cree in Quebec. This method was soon adopted by the Inuit throughout the Canadian Arctic and is now a mandatory element of over 50 territorial negotiations under way in British Columbia. Tenure mapping is about the past; asset allocation mapping is about the future (source: Peter Poole).

Thematic map: A map that depicts specific themes or sets of information; for example, forest type, land use, historical migration, property ownership, or animal habitat (source: IAPAD).

Topographic map: A contour map that shows human-made and natural physical features. A topographic map at a scale of 1:10,000 to 1:50,000 would be a good base map (source: IAPAD).

Transect: Surveying in a straight line across the land, usually for the purpose of mapping or recording information along the line. Transects are often conducted for a resource inventory (source: IAPAD).

Visual approximation: This is a process where map readers or map makers make an approximation of a position of an object – or important feature, or an area of the object – just by looking at the feature on the map and plotting that feature digitally in relation to other existing features. It also refers to mapping of the new objects by mentally deducing the position and size of the object in relation to mapped features.

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For a more comprehensive glossary of community mapping terms, visit: www.iapad.org/glossary/default.htm. Most definitions found on IAPAD are adapted with permission from:

Flavelle, A. (2002) *Mapping Our Land: A Guide to Making Your Own Maps of Communities and Traditional Lands*. Lone Pine Foundation. See www.iapad.org/flavelle.htm