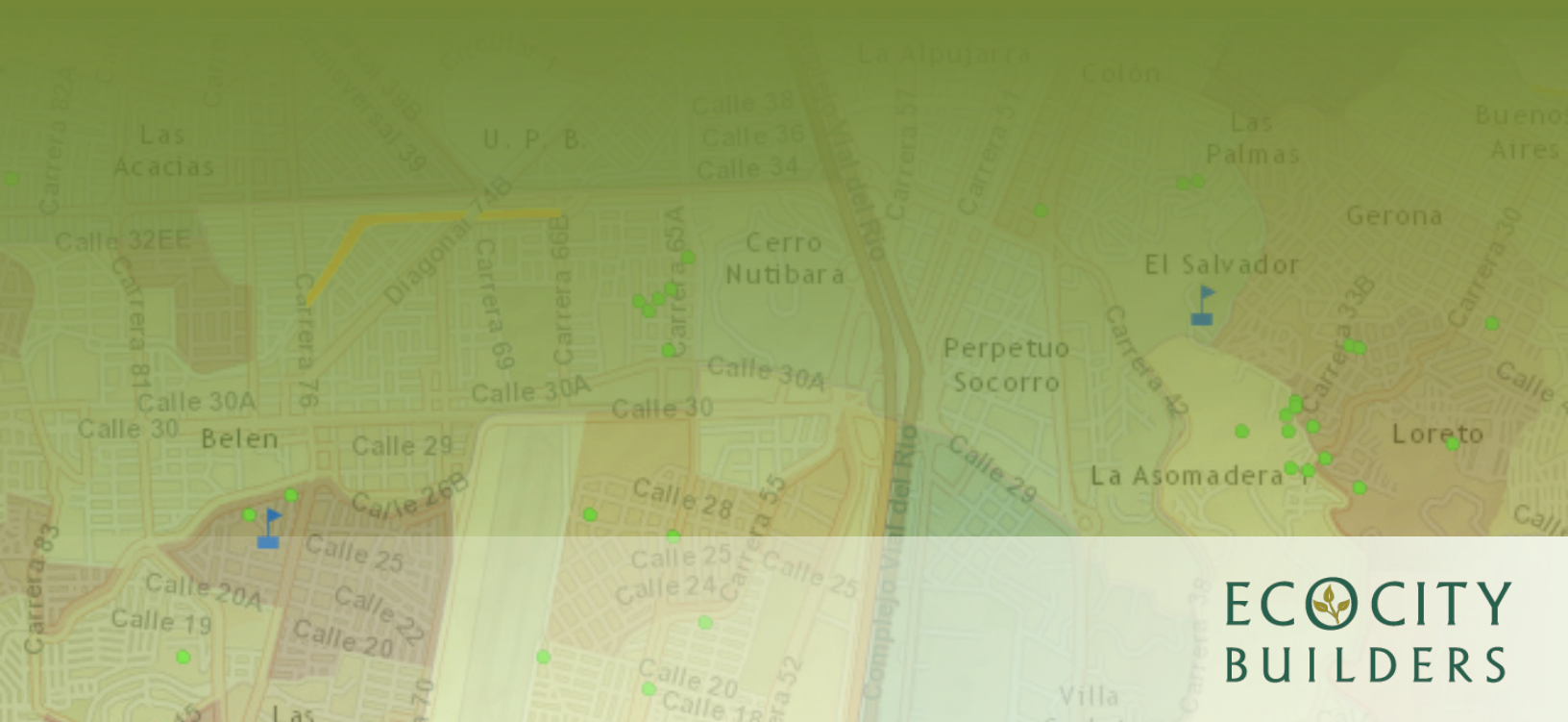




THE ECOCOMPASS

A Compendium of Educational Resources
as part of the **EcoCitizen World Map Project**



ECOCITY
BUILDERS

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i. Introduction

The EcoCompass is the instructive companion to the EcoCitizen World Map Project (EWMP). It represents both an educational training program with a distinctly participatory pedagogical approach as well as a resource platform that is customizable and dynamically evolving.

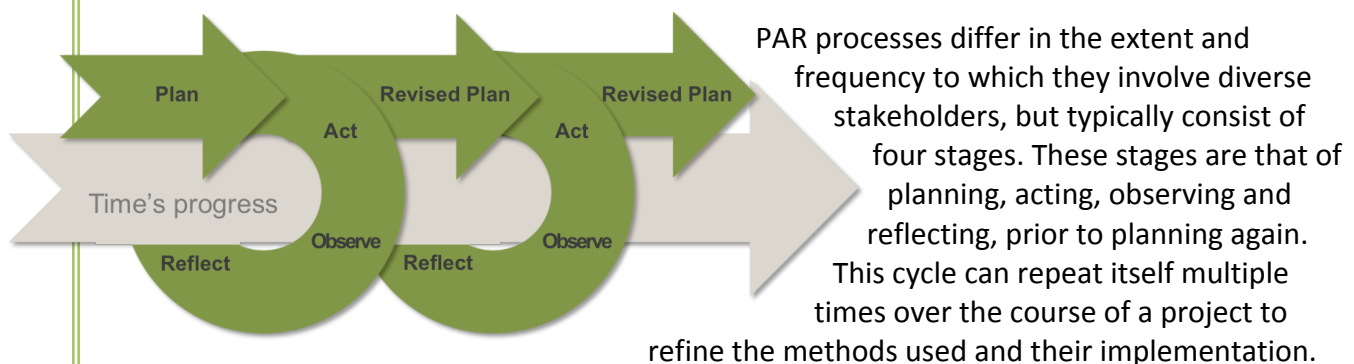
The EcoCompass tests a replicable set of methodologies and tools within institutional environments, such as universities and non-profit organizations, that can then adapt these for local and cultural relevance before transferring such knowledge base to ordinary citizens.

In doing so, the EcoCompass provides the incentive and understanding for communities to crowd-source urban data and holistically assess their condition. Throughout the process, EcoCitizens are born who can thereby plan for interventions that enhance the sustainability and equitability of their neighborhoods and cities.

This data, its assessment, and the interventions in response are documented through the EcoCitizen World Map. The EcoCompass therefore builds capacity in EWMP pilot cities for EcoCitizens to populate the Map with global data. Reciprocally, the Map provides a platform for training EcoCitizens, fostering a transition towards EcoCities and building cooperation between them throughout the world.

ii. Framework

The EcoCompass uses a framework known as participatory action research (PAR), which challenges structural barriers to information and provides opportunities for communities to directly lead the research process, thereby leading to community-generated solutions in urban planning and public policy. PAR is collaborative at every stage of the project and intends to result in some action, rather than research for its own sake.



In the case of the EWMP, this iterative approach is necessary as the data is being collected by, for and with the community; it is imperative that the questions asked, the techniques used, and the interventions proposed are defined and led by the participants.

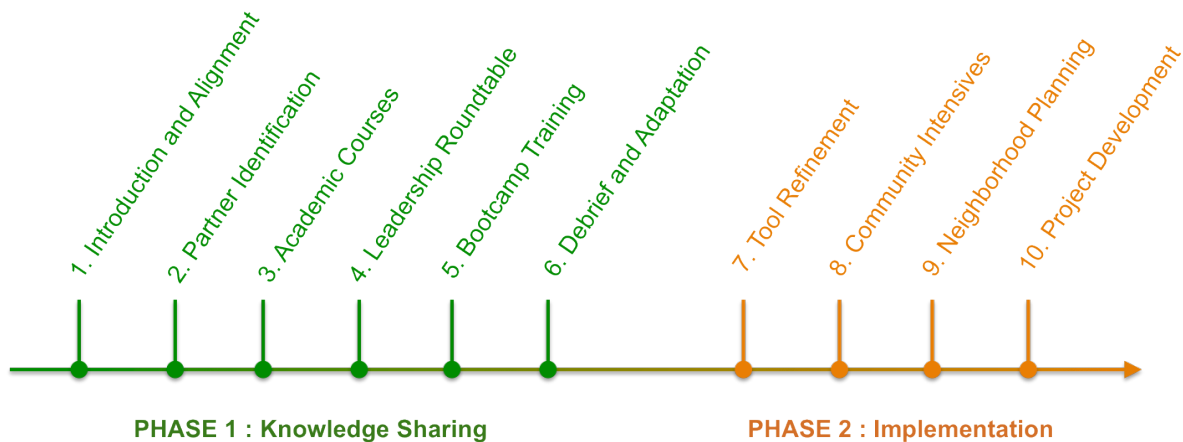
The concepts and practices used as part of the EcoCompass can be defined according to three canons of knowledge: urban metabolism information systems (UMIS), geographic information systems (GIS), and public participation techniques (PPT). UMIS describes a system, along with all of its components, to account for and analyze resource flows as they move from the natural environment (i.e. a source) through the built environment (i.e. a city) back to the natural environment (i.e. a sink).

A GIS is a virtual method, such as a computer system, capable of assembling, storing, manipulating, analyzing and displaying geographically referenced information. It also includes the personnel operating the system and the data that goes into the system. PPT applied to land use planning provide opportunities to spatially engage citizens through the use of GIS and UMIS; techniques covered include media campaigns, guided tours, facilitated meetings and groups, visioning exercises, visual preference surveys, design charettes and computer simulations.

Given its PAR processes, EcoCompass materials are developed in such a way so as to maximize participation, ensuring that community-based resources are offered in the appropriate language or dialect, framed using accessible terminology and concepts, and delivered in a meaningful way.

iii. Scope of Engagement

The EcoCompass is comprised of different types of engagement undertaken in a chronological format. The ten steps involved in the EcoCompass span two phases:



The last step of the EcoCompass involves educational support for project development, and includes strategies such as establishing a database of best practices and construction standards for sustainable and equitable interventions; such a database is further populated by interventions implemented as an outcome of the EWMP.

The six steps that comprise the first Phase, that of ‘Knowledge Sharing’, have already been piloted in two cities as part of the EWMP activities. The following sections summarize this Phase’s activities.

Introduction and Alignment

At the initial stages of identifying a pilot city and prospective international organizational partner (e.g. an academic institution, non-profit organization, neighborhood group), the Ecocity Builders team introduces the EWMP along with the core concepts of the EcoCompass.



Ecocity Builders introducing EcoCompass educational resources to potential partner organizations at a conference in Medellin Colombia, April 2014.

Points of alignment are determined with existing programs and projects of the organizational partner. Ecocity Builders and its partners assess internal capacity, community engagement, and mapping priorities going forward.

Partner Identification

Initial meetings may include facilitated

mapping of community assets and networks to determine further partners in the city to support the EcoCompass activities. Such partners may include community-based organizations in the potential study areas, social and environmental non-profit groups, academic researchers, media developers and urban data repositories.

Academic Courses

A main objective of the courses is to prepare students for leading knowledge transfer activities when working with the community-based organizations, to build citizen capacity in the research, analysis and planning as part of the Bootcamp Training and beyond.

There are two proposed scenarios for colleges and universities participating in the EWMP, either by weaving the Project activities into the existing course curriculum or developing a specific course customized to the requirements of the Project. In either case, the course curriculum may be more survey-based or more focused on data analysis.

In the first scenario, relevant resources are integrated into the course syllabus while select seminars and labs, that complement course objectives, are offered in accordance with the Project's needs. This may be more compatible for engaging classrooms at the undergraduate level or in technical programs at colleges.

In the second scenario, a course is specifically crafted for the intended purposes of the EcoCitizen World Map Project. This may be particularly suited for the ongoing research activities at the graduate level. In this scenario, the University Course uses seminars and labs to methodically cover five distinct areas relevant to the EcoCitizen World Map Project. These are: EcoCities and Sustainability Indicators, Systems Approaches, Participatory Mapping, Neighborhood Audits, and Citizen Engagement.

The university courses are also a critical step in collecting background and base map information about the city and study area that will serve as a foundation for the UMIS and GIS established as part of the EcoCitizen World Map for the pilot city. For example, as part of the classroom activities, students are expected to collect figures on UMIS resource flows, set up the relevant GIS geodatabase, and determine what existing PPT have been applied to the study area.

Leadership Roundtable

The Leadership Roundtable is an event coordinated by the course students inviting community elders, youth and leadership from the selected study area to a presentation on the EcoCitizen World Map Project.

The event includes a discussion that refines the purpose, scope and participatory process (including decision-making models, and data-reporting standards and questions around ownership of research outcomes) for Phase I.



A student from the EcoCitizen class at Cairo University presents at the **Leadership Roundtable** to residents in the neighborhood of Imbaba, April 2014.

It also serves to ensure that such leaders can identify how they would like to be engaged in the future project activities, particularly the Bootcamp which represents the next step in the scope of engagement. It is an opportunity to propose realistic targets and relevant forms of participation for the data collection, input and analytical processes. Examples of

specific participatory activities may include training on GPS devices, co-facilitation methods, computer data entry, digitizing and geocoding techniques.

Finally, the Leadership Roundtable includes an initial discussion on neighborhood boundaries, with the recognition that perceptions of these can differ depending on different resource flows and may become more refined during the Bootcamp activities.

Bootcamp Training

The Bootcamp Training is a two-day event where participating schools and organizations coordinate workshops and citizens collect data relevant to their neighborhood.



Community organizations and students set up a data collection workstation in a busy neighborhood street of Cairo as part of the **Bootcamp Training**, April 2014.

Students transfer skills learned pertaining to UMIS, GIS, and PPT methods and resources, to community members in a study area defined according to the boundaries established during the Leadership Roundtable.

Teams are configured according to the different data collection methods and needs to establish baselines. Such needs

include environmental assessments (e.g. air and water quality tests), quality of life questionnaires, as well as household and neighborhood audits of resource management (e.g. water demand, energy consumption). At the designated workstations set up within the study area, data is digitized, testing samples are assessed, and results are analyzed.

Debrief and Adaptation

As part of its PAR framework, the EcoCompass includes activities to guide the reflection by participants—including the students, community leadership and organizational staff—on the technical, social and environmental outcomes of the EcoCompass activities.

Activities include feedback forms, focus groups, surveys and final reports. This information is collected and synthesized by Ecocity Builders and its participating partners to modify and refine the EcoCompass methods and resources.

1. Resource Overview

The following table lists the EcoCompass Resources available for different types of education and engagement throughout the scope of the EcoCitizen World Map Project.

Type	Description	EcoCompass Resource and Format
Global Classroom	Webinars for participating students to exchange ideas and experiences of EWM activities.	Facilitation guides and IT support document downloads for instructors to set up webinar and lead seminars.
Scholastic Seminars	Introduction to Geographic Information Systems, Urban Metabolism Information Systems and participatory techniques.	Folders organized according to seminar topic and week that include: <ul style="list-style-type: none"> • PowerPoint presentation slide deck. • Supplemental lecture notes. • Essay questions and mini-quizzes. • List of hyperlinked readings and bibliography. • Environmental assessment testing kits. • UMIS and GIS software packages and necessary licenses.
Scholastic Labs	Hands-on activities, role-playing exercises, simulations for software use.	Folders organized according to lab topic and week that include: <ul style="list-style-type: none"> • PowerPoint presentation slide deck. • Tutorials and data set folders for simulation exercises. • PDF activity (i.e. role-playing exercises,) handouts.
Virtual Lectures	Guest lecturers in real-time or as audiovisual pre-recordings explaining and exploring specific themes of the project (e.g. urban metabolism, sustainable building design, community mapping).	Updated schedule of proposed dates, speaker names and webinar login information for proposed topic titles organized according to seminar topic as a supplemental activity.
Barefoot Workshops	Workshop videos for prospective participants in selected or future neighborhoods to participate in project activities. Available in various languages, cultural contexts, and narrated with minimal text for low levels of literacy.	<ul style="list-style-type: none"> • Coordination guide and checklist document. • Instructional videos with audio-narration and many visuals/graphic, showing environmental data collection and testing procedures, GPS device utilization, data entry protocols, promotional activities, household audits, and citizen survey methods or scripts.
Bootcamp Activities	Materials for students and volunteers to coordinate activities as part of Leadership Roundtable and two-day Bootcamp event.	<ul style="list-style-type: none"> • Team data collection worksheets. • Team work flow diagrams. • Collection kit list of requirements (e.g. GPS devices, testing equipment for water and air quality, etc.), procurement procedure, safety measures and workarounds. • Promotional material downloads. • Step-by-step description of team activities.

The global classroom, scholastic seminars, scholastic labs and virtual lectures are all part of the university courses previously described. They typically take place in the academic institutional setting and mostly cater to students in a range of disciplines with access to educational resources. Conversely, the barefoot workshops and bootcamps are intended for the neighborhood setting and cater to urban citizens in the study areas who may have minimal training in formal institutionalized schooling and varying levels of literacy.

The following sections discuss the EcoCompass Resources associated with three different types of engagement and education, namely the seminars, labs and bootcamps. Each section includes hyperlinks listing the activities and examples of materials available.

1. Scholastic Seminars

Scholastic seminars are structured as ten modules intended for colleges and universities interested in direct training on aspects of the EcoCitizen World Map Project.



- **Activities:** <http://bit.ly/RrJzWA>
- **Materials:** <http://bit.ly/RrAL9T>

Seminars are approximately sixty minutes in length and consist of an instructor's presentation intended to encourage class discussion, student hand-outs and downloadable readings for students in preparation for the seminar. Seminars are typically followed with a quiz or essay-based questionnaire. Each seminar is structured to address an agreed set of specific learning outcomes, with Standards of Performance identified wherever possible.



Learning outcomes are discussed in advance, with the school's participating teachers or professors, and describe the skill or concept that students are expected to demonstrate and have working knowledge of by the end of the seminar. Instructional materials include prepared slide decks that can be downloaded and adapted by the course instructor.

Suggested activities include prepared handouts that can be downloaded and adapted by the course instructor, and identify what further materials, equipment or facilities may be required to undertake the activity; requirements are not compulsory but involve software and hardware applications that can facilitate learning through data collection, organization and analysis.

Background resources provide instructors with a list of linkable multimedia documents to support a more comprehensive understanding of the topic.

2. Scholastic Labs

Labs are approximately ninety minutes in length and can involve fieldwork or computer-based tutorials. They are typically followed with a research-based assignment or a technical exercise. Much like the seminars, they follow a logical progression building on the students' understanding of material learned in the seminars.



- **Activities:** <http://bit.ly/Qj8HUY>
- **Materials:** <http://bit.ly/1jl6l42>

Students are also introduced to a range of software that allows them to work within a GIS or UMIS. In the pilot cities, students were trained in the use of industry standard geospatial platforms such as Esri ArcGIS as well as innovative open source web maps such as Ushahidi.

As an example of previous EcoCompass labs, students in Cairo were trained on how UMIS can be used to create Sankey diagrams and communicating standardized calculations for resource flows, with measurements of efficiency, diversity and self-reliance. A subsequent lab had students working at desktop stations in teams to create new features on a map, running queries, and performing spatial adjustments on data.

Lab assignments may include simulations using the software or fieldwork to collect data from the study area using geosensing devices. In the case of the final lab, students submitted a report utilizing the UMIS and GIS methods discussed to analyze the findings from the Bootcamp.

3. Bootcamp Activities

The Bootcamp represents a 'first pass' at the methods discussed throughout the course. It offers students an opportunity to interface with the community members, and to facilitate the transfer of knowledge. In this way, further activities of the EWMP for the area are managed and maintained by its citizens.

To support the Bootcamp Activities, the EcoCompass includes worksheets and work flow diagrams to ensure that participants apply a standardized method to data acquisition in the study area. Guidance documents for students to facilitate public participation in the surveys, sample collection, and household audits support the need for citizens to define the research scope.



Neighborhood citizens, participating organizations and students from Mundiapolis University review testing procedures for water samples from the study area in Casablanca as part of the **Bootcamp Activities**, April 2014.



- **Activities:** <http://bit.ly/1jll9zq>
- **Materials:** <http://bit.ly/1s7MCVL>

Further Information

To find out more about the EcoCompass and Participatory Information Technologies (PIT)
Contact: Dave Ron, Ecocity Builders PIT Programs Manager at dave@ecocitybuilders.org

A large, stylized globe graphic in a light olive green color, positioned in the upper right quadrant of the page. The globe features a grid of latitude and longitude lines, with the lines curving to follow the sphere's shape. The background of the entire page is a solid, darker olive green.

ecocitizenworldmap.org/ecocompass