

# Green City Projects: Facilitating Cross-Faculty Communities of Practice in Environmental and Sustainable Development Research for Manchester City Council

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## Abstract

The Green City Project aimed to promote cross-disciplinary student collaboration on environmental and sustainable development projects in partnership with Manchester City Council (MCC). From February 2008 until May 2009, students from five different programmes worked on projects that included the energy efficiency benefits of green roofs, commercial recycling and examples of best practice in sustainable construction. Organising cross-disciplinary student collaboration on projects was challenging and less successful than anticipated as a result of the different timeframes and expectations from each School. However, most students expressed a desire to work with peers from different disciplines and felt that such cross-disciplinary collaboration could have benefited the outcomes of their projects.

Engagement with MCC project managers was positive, and their feedback guided improvements in the organisation and supervision of student projects. The project will be embedded in the form of two continuation activities. First, the Green City Project led to the establishment of the *MCC Green City University Programme*, which sets out strands of engagement between the University of Manchester and the MCC Green City Team on environmental and sustainable development issues. This partnership will allow the Green City Project to continue to provide opportunities for student projects on a regular basis. Second,

many of the aims of the Green City Project will be pursued in a new, cross-faculty unit called the *Manchester Sustainable City Project* and will enable multidisciplinary student collaboration to be organised and evaluated more effectively.

## Background

The Green City Project was not a course unit, but an initiative for connecting project opportunities identified by the Green City Team within the Manchester City Council to relevant, existing course requirements or student assignments. The idea behind the Green City Project initially developed from conversations between Colin Hughes, the Director of The Environment at Manchester (TEAM), and the Green City Team within the MCC. It also benefited from existing collaboration between the MCC and the Client-Based Projects course unit developed by Mark Baker in Planning and Landscape.

The Green City Project was open to students from any School across the University of Manchester (UoM) and focused on opportunities for dissertation projects for individual final year undergraduates and Masters students, as well as large group projects, mainly for final year students. Following the negotiation of a project brief between the student(s), academic supervisor and MCC project manager, a student or student team was paired with a project manager from the MCC.

From February 2008 to May 2009, 25 students from the following schools across two faculties participated:

1. 14 undergraduates from the Manchester Architecture Research Centre within the School of Environment and Development;
2. 1 MSc student from the School of Earth, Atmospheric and Environmental Sciences – Pollution and Environmental Control programme;
3. 1 MSc student from the School of Earth Atmospheric and Environmental Sciences – Masters in Environmental Science, Policy and Management programme;
4. 8 final year undergraduates from Planning and Landscape within the School of Environment and Development;
5. 1 final year undergraduate from the School of Mechanical, Aerospace and Civil Engineering.

In addition, three final year undergraduates (two from the School of Earth, Atmospheric and Environmental Sciences and one from the Manchester Business School) have expressed interest in projects for 2009-2010, and more are expected.

## Rationale

The overall aims of the Green City Project were to connect student learning with current, local environmental and sustainable development issues of interest to the MCC; to foster cross-disciplinary collaboration through enquiry-based project work; and to embed formal collaboration where possible. It sought to bridge the gap between a student's knowledge and skills gained through coursework and the expectations of a work environment. A better understanding of these expectations could help to motivate students and guide them to focus on improving their skills in the areas most relevant to their desired careers and give them insight into some of the processes involved in a large organisation like the MCC.

The first objective was to improve students' awareness of local environmental issues and encourage them to apply and adapt solutions from other settings to address local needs and concerns. This approach provides students with the opportunity to develop higher cognitive skills by applying their knowledge to new situations (Bloom 1956). If students are more conscious of the environmental issues that are affecting the local community, then they may seek ways to take responsibility for leading the way toward positive change, and in this process they may come to find new, exciting questions to pursue. David Selby (2006) describes the importance of connecting the setting or place of learning with the topics being studied, particularly in the context of sustainable development, as follows:

*...the relationship between higher education (or any education) and place should be seamless so that learning arises from ongoing engagement with communities, environments, organizations, businesses and networks within the university's hinterland.*

The second objective of the Green City Project focused on promoting cross-disciplinary peer-learning and encouraging students to share their disciplinary knowledge backgrounds in the context of the projects. Although staff and students have previously been involved in collaborative projects with the MCC prior to the Green City Project, the possibility of cross-disciplinary collaboration is often precluded as a result of demands on staff time and other logistical issues. However, supporting an opportunity for cross-disciplinary collaboration can help to achieve important learning objectives such as the ability to engage in holistic thinking and to appreciate and integrate different perspectives in problem solving situations (Svanström *et al.* 2008). In addition, students can be more effective at conveying their knowledge to their

peers, which on some levels may be more difficult for an academic, particularly if some students feel timid about asking their tutors or supervisors certain questions. The practice of sharing this knowledge is also a deeper level of learning and understanding that allows students to develop and employ higher-level cognitive skills, including the synthesis of ideas and evaluation of different approaches (Isaacs 1996).

As additional objectives, the Green City Project sought to improve links with the MCC on teaching and research activities and increase staff awareness of CEEBL and Enquiry-Based Learning. The combination of all of these objectives aimed to help students to develop a more holistic view of environmental and sustainable development issues that are important to the local community while becoming more aware of the skills, knowledge and problem-solving approaches of their peers from other disciplinary backgrounds. The experience in working as part of a multidisciplinary team with an external organisation in the context of academic work would also boost students' employability.

## Approach

A list of potential projects gathered by the MCC and its associated partners based on their prospective or current aims was offered to students and academics at the University for the 2007-08 and 2008-09 academic years. TEAM promoted the projects and served as a gateway between the MCC and interested academics and students who wanted to work with them on environmental or sustainable development projects. Potential opportunities for cross-disciplinary collaboration were also investigated and pursued where possible. Project titles varied from sustainable construction and sustainable energy to environmental health and regeneration.

Two postgraduate students were employed on a limited basis as project assistants to promote and support the Green City Project within their Faculties. However, the relatively low initial uptake of projects and the difficulties in forming cross-disciplinary student teams precluded the opportunity for the project assistants to facilitate the engagement forum and plenary sessions that were planned.

A student learning agreement was developed to clarify the benefits and responsibilities associated with students' participation in the Green City Project. The main student responsibilities included drafting a concise response to the project brief, completing a communications plan describing how they would interact with the external organisation and keeping a reflective learning diary on the progress of the project. Unfortunately, most students

only completed some of these additional tasks. Documents were also drawn up to clarify the role and responsibilities of the academic supervisor and the MCC project manager. The latter was important in managing MCC's expectations, since the product was less important than the learning process (Ryan and Morris 2005). These documents can be found in Appendix 1.

In terms of group size, three students undertook individual projects and there were two teams of four students and one large team of 14 students working on the other projects. Once the project brief had been negotiated and agreed, students were given latitude to organise their own project work and group meetings with input from their supervisors and the MCC project manager. However, students were periodically contacted by the UoM Green City Project Team when possible to check on their progress, particularly where the students asked for greater input and feedback.

## Assessment

The Green City Project did not impose any requirements on students that directly affected their assessment. The extra responsibilities associated with their participation were voluntary and generally complemented existing requirements without adding substantial work. In some cases these responsibilities provided useful guidance to help students better organise their work. The academic supervisors were also asked to encourage students to fulfil these responsibilities.

The UoM project manager was responsive to students' concerns as they arose. In one of the earlier projects, there was a degree of conflict between a student team's concerns with satisfying their academic requirements and their willingness to adapt their research approach in response to feedback from the MCC project manager in order to better fulfil the project brief. To avoid repetition of this situation, the student learning agreement was adapted to ensure that the academic supervisors clearly conveyed to students and the MCC project manager how the project brief fitted within the assessed academic requirements. An additional requirement of a midway progress meeting between the students and the MCC project manager was also included to allow students to receive feedback on their work and make adaptations as necessary. An important recommendation was the need for someone to liaise between students, the client and supervisors, as well as to convene a midway progress meeting with each team.

# Evaluation

Students were asked to fill in an evaluation survey at the beginning and the end of their projects, which focused on their ability to: assess their own learning; work with students from other disciplines; evaluate their own work; and demonstrate key skills related to team-working and employability. However, most students only completed the survey upon completion of their project making it difficult to comment on the impact of the course on their learning. Greater effort could have been taken to explain the importance of the evaluation surveys to the students and in recruiting assistance from academic supervisors to ensure that the surveys were completed.

Nevertheless, the vast majority of students did find their experiences in working on a Green City Project to be valuable, and over 80% of the students felt that they would have benefited from cross-disciplinary collaboration on the project. Student comments on the experience were positive:

*(it was) more realistic to actual job situations [and] provided insight into the ways partnership working is carried out.*

*(it) definitely helped to build up my self-confidence.*

*the most positive aspect was the possibility to meet many professionals working in the field.*

Feedback from the MCC and the project managers was generally positive as well. They found the amount of time that they needed to allocate to the project to be reasonable, and overall they appreciated the opportunity to work with students. However, they felt that greater clarification should have been made regarding the students' desire to meet their academic requirements (and try to receive a high mark) *versus* the objectives of the project brief. The student learning agreement was modified to address the need for the academic supervisor to specify the connections between these two goals and clearly reconcile them to both the students and the project manager.

Overall, the Green City Project was successful in its aim of connecting students from many different Schools to a variety of interesting environmental and sustainable development project opportunities with the MCC. It improved their awareness of local environmental issues and encouraged them to apply their knowledge to develop solutions. However, the greatest area for improvement was in the formation of cross-faculty student teams. This was complicated by a wide range of starting and finishing dates for student projects across Schools, as well as a large variation in requirements and expectations for different student courses. Nevertheless, a

more focused approach, possibly involving a smaller number of broader projects, might have enabled the cross-disciplinary student teams to have been formed more effectively. The new *Manchester Sustainable City Project* module (described below) is a response to this problem. It will directly recruit cross-disciplinary student teams, who will have the same timetable, learning objectives and assessment requirements.

## Further Development

The main objectives of our work will be continued and expanded in a new cross-faculty course unit called the *Manchester Sustainable City Project (MSCP)*. This course unit, which will be coordinated by the Sustainable Consumption Institute, with support from CEEBL, will be available to all level two students at the University. It will involve multidisciplinary student teams who will collaborate on enquiry-based learning projects relating to environmental and sustainable development issues in partnership with local organisations throughout Manchester. Evaluation of the effectiveness of the cross-disciplinary peer learning will be conducted more readily in this course unit setting. More information on the unit can be found in a short version of the course unit specification listed in Appendix 2.

In addition, the Green City Project will continue in a modified form as part of the MCC's formalised engagement with the University called the *Green City University Programme*. The MCC Green City Team will gather environmental and sustainable development project opportunities for students from across the Council from July to August and distribute a project list to the University at the beginning of September each year. Distribution of the project list throughout the University will be coordinated through the Sustainable Consumption Institute. The projects can be taken up by individuals or teams. They will be largely directed at academic staff as intermediaries in recruiting students (whereas MSCP will recruit students directly). Cross-disciplinary collaboration on projects will be encouraged. There is potential to involve staff and students from the School of Education, who may be interested in coordinating, evaluating or assessing the outcomes of projects that have particularly high potential for cross-disciplinary collaboration.

## Acknowledgements

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# References

Bloom, B.S., ed., 1956. *Taxonomy of Educational Objectives: The classification of Educational Goals: Handbook I, Cognitive Domain*. New York: Toronto: Longmans.

Isaacs, G., 1996. *Bloom's taxonomy of educational objectives* [online]. Brisbane St. Lucia, The University of Queensland. Available from: <http://www.tedi.uq.edu.au/downloads/Bloom.pdf> [Accessed 12 April 2009]

Ryan, L. and Morris, R., 2005. *Designing and managing a strategic academic alliance: an Australian university experience*. *The Journal of Workplace Learning*, 17, 79-87.

Selby, D., 2006. *The catalyst that is sustainability: bringing permeability to disciplinary boundaries*. *Planet*, 17, 57-59.

Svanström, M., Lozano-Gracia, F.J., and Rowe, D., 2008. *Learning outcomes for sustainable development in higher education*. *International Journal of Sustainability in Higher Education*, 9 (3), 339-351.

# Appendix 1

## Green City Projects learning agreement

### **Objective:**

This learning agreement outlines the benefits and responsibilities associated with a student's participation in the Green City Project's collaboration with Manchester City Council (MCC). It also provides guidance to facilitate communication between the student(s), supervisor (for individual dissertation projects) or course tutor (for group class projects) and MCC project manager.

### **Student Benefits for Participation in a Green City Project:**

1. An opportunity to work on an interesting environmental/sustainable development project whose results can have real benefits for the city and local communities.
2. Treatment in a professional manner that simulates expectations in a real 'world of work' environment.
3. An opportunity to negotiate the plan and objectives of a project with the MCC project manager commissioning the project.
4. Advice, guidance and feedback on the progress of the project from the MCC project manager in the form of email and telephone contact and meetings as described in the communications plan agreed with the MCC project manager and your supervisor.
5. An opportunity to learn how other disciplines tackle client-based projects and enrich your project by sharing ideas with them.
6. An opportunity to present the project results to an interdisciplinary audience of students and staff – learning how to communicate your work to people from outside your discipline is valuable experience for most graduate jobs.
7. An excellent credential showing professional collaboration to list on your CV.

### **Student Responsibilities for Participation in a Green City Project:**

1. Submit expressions of interest in a project in the first instance to Pete Smyntek, the project coordinator at the University, and ensure that he is kept up to date with developments. This is so that he can direct you to the MCC project manager and partner you with students in other disciplines interested in the same project.
2. Provide the MCC project manager with a 1 to 2 page summary in response to the project brief that demonstrates an understanding of the project objectives, outlines work expectations and provides a proposed approach to the project. A communications plan should also be agreed, as per item 6 below. You may also need to work with the MCC project manager and your course tutor or dissertation supervisor to agree on the final project brief.<sup>2</sup>
3. Formally accept the project offer by the date and method specified. This is so that the project can be reallocated if required and we can maintain up-to-date records.
4. Participate in an engagement forum at the beginning of your project to interact with other students who will be working on related projects with the MCC.
5. Maintain a commitment to working on the agreed project brief and focus on addressing the objectives that it specifies. Significant changes will only be permitted in exceptional circumstances and would need to be agreed by both your course tutor or dissertation supervisor and the MCC project manager and notified to Pete Smyntek. This is to help avoid unfulfilled expectations and undue overlap in topics.
6. Produce and agree a communications plan with the MCC project manager containing key milestones such as inception meeting, midway progress meeting, draft report, final presentation/meeting and ongoing email and telephone contact.
7. Provide at least one draft of the report/deliverable to the contact at the MCC before submitting the final work, and at a time agreed with him/her.
8. Share your ideas and experiences of the project with other Green City project students, preferably via the Blackboard online module.
9. Participate in a plenary discussion to share results or present the outcomes of your work in a way that future students/student groups could continue to work on the project in the future if there is scope for further work.

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<sup>2</sup> Please note that submitting a summary does not automatically mean that you will be allocated that project. MCC and your supervisor or course tutor reserve the right to say no.

10. Allow project work/outputs to be available to a wider audience in order to promote and develop the wider Green City Projects initiative at the University.
11. Complete a self-evaluation form about your skills and expectations at the start and end of the project. Keep a short, weekly reflective diary on the progress of the project and minutes of meetings with project collaborators (including your supervisor and the MCC project manager).
12. Help us to improve the Green City Projects scheme for future students by giving us feedback, for instance by completing a course evaluation form, taking part in a focus group or an interview.

### **MCC Project Manager's Responsibilities**

1. Draw up a project brief, ideally with some consultation from the academic staff member or student(s) involved.
2. Communicate with the student(s) as per the agreed communications plan, which should cover the key milestones such as inception meeting, midway progress meeting, draft report, final presentation/meeting and ongoing email and telephone contact.
3. Provide advice, guidance and feedback on the progress of the project to the student(s) via email and telephone contact as well as meetings if necessary.
4. Attend the student(s)'s presentation of the final results of the project.
5. Provide feedback to help improve the Green City Projects collaboration between the University and the City Council.

### **Academic Staff's Responsibilities**

1. Meet or communicate with the MCC project manager to develop the project brief or to negotiate changes to it.
2. Meet with student(s) to discuss their project brief and clarify how it fits within the context of the academic requirements for their particular course or class.
3. Provide advice, guidance and feedback on the progress of the project to the student(s) as appropriate to their own School's policy.
4. Attend the student(s)'s presentation of the final results of the project if possible.
5. Provide feedback to help improve the Green City Projects collaboration between the university and the City Council.

# Appendix 2

## Manchester Sustainable City Project course unit specification

### **1. Aims**

*The unit aims to:*

Connect student learning and local community practice via multidisciplinary collaboration on enquiry-based learning projects relating to environmental and sustainable development issues in association with local NGOs/charities, small or medium enterprises, the University's Directorate of Estates and local authorities.

### **2. Brief description of the unit**

The sustainable development framework, RoundView, developed by Dr. Joanne Tippett from the School of Environment and Development as part of a research collaboration project relating to staff training with Tesco, is used to introduce students to key sustainable development concepts/principles. Student teams employ this framework to assess a broad, topical issue to gain practical experience in applying sustainable development concepts in a holistic manner.

Student teams then negotiate and respond to a project brief set by a partner organisation and work independently under the guidance of a facilitator. Student teams also use an innovative, collaborative mind-mapping toolkit to identify key challenges; organise and divide background research assignments and tasks; devise strategies to provide creative solutions to address the objectives of the project brief; and collaborate with the partner organisation in meeting these objectives. Students discuss sustainable development principles and frameworks and are challenged to examine how to apply them in the context of their project. Finally, students present the outcomes of their projects in both a poster presentation with a question and answer session and a formal report. Student teams receive feedback from their peers and partner organisations.

A wide variety of evaluation techniques will be incorporated into the unit to examine students' disciplinary knowledge about sustainable development and identify aspects of the unit that can be adapted to better serve student needs. The views of students, facilitators and project partners will each be gathered to improve the unit.

### 3. Intended learning outcomes

<b>Category of outcome</b>	<i>Students will be able to:</i>
Knowledge and understanding	<ul style="list-style-type: none"><li>- Demonstrate knowledge of the sustainable cities agenda</li><li>- Demonstrate understanding of the complex interdependencies between components of the urban environment and wider sustainable development contexts</li></ul>
Intellectual skills	<ul style="list-style-type: none"><li>- Apply scholarship and holistic approaches in the analysis of complex problems and the development of solutions</li></ul>
Practical skills	<ul style="list-style-type: none"><li>- Project dependent</li></ul>
Transferable skills and personal qualities	<ul style="list-style-type: none"><li>- Negotiate and work to the specifications of a project brief as part of a team</li><li>- Reflect deeply on personal learning and interactions within a team setting</li><li>- Identify and engage with stakeholders</li><li>- Prepare and present a professional report and poster to an external organisation</li><li>- Identify, synthesize, critically evaluate and develop familiarity with cutting edge research and policy issues as articulated in peer reviewed academic journals</li></ul>

### 4. Learning and teaching processes

An initial lecture and workshop will introduce students to sustainable development frameworks and principles using the innovative group work toolkit, Ketso. Facilitators drawn from Ph.D. students in the Sustainable Consumption Institute Doctoral Training College, who have expertise in a range of areas relating to sustainable development, will then guide student teams in Enquiry-Based Learning with a focus on discussion and project planning. The experience and broad knowledge backgrounds of these facilitators will allow them to address most student queries and provide guidance on key project issues. However, at least one academic staff member will be present to address issues that are beyond the facilitators' areas of expertise and to assure that the class sessions run efficiently. Student teams will also be guided in themed discussions relating to team-working, project planning and interdisciplinary working that will familiarise them with the processes involved in the project work and serve as stimuli for the individual reflective portfolio assignment. Students will receive feedback from academic staff and project managers from the partner organisations as outlined in communications plans produced by the student teams. Online learning resources will include a Blackboard learning space and assignments for students to post work on a blog to be shared among groups and with project partner organisations.

## 5. Assessment

The principal forms of assessment will be an individual reflective portfolio, a team poster presentation with a question and answer session and a final team project report. Peer assessment will form an important section of the overall assessment with peer marks for team poster presentations and peer moderation of the final team report to prevent some students from acting as passengers and benefiting from the work of their team without making their own substantial contribution.

Assessment task	Length	Weighting within unit
1) <b>Individual written work</b> - reflective portfolio addressing learning, group working and project progress. Some specific tasks within this reflective portfolio will be required, such as reflection on key learning from the specific project in relation to sustainable development principles and frameworks.	10 weeks	1) 25%
2) <b>Group written work</b> - project outline describing approach, objectives and communications plans with formative feedback from staff and project partners.	3 weeks	2) nil
3) <b>Group poster presentation</b> with question and answer session. Assessment criteria will include student input. Contributions from all team members at the Q&A session will be required. Peer assessment and feedback with staff moderation and formative feedback from project partners will be provided.	6 weeks	3) 15%
4) <b>Group written project report</b> that investigates relevant literature and addresses the broader contexts and applications of the project work. Peer moderation of the report mark will be used to hold all team members accountable and ensure excellent individual contributions are rewarded.	10 weeks	4) 60%