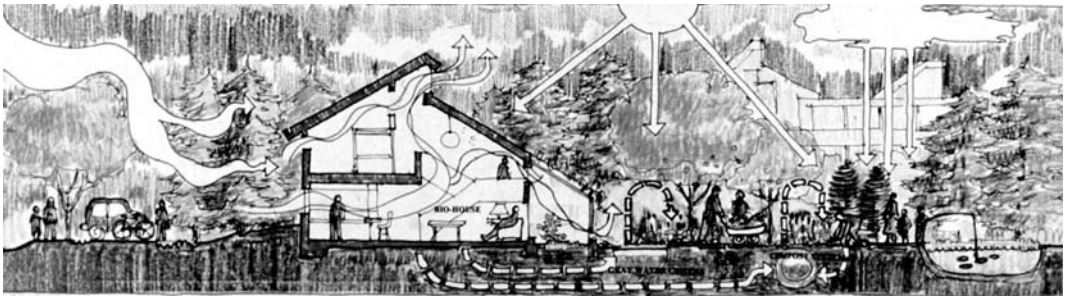

Figure 12.18
Pullman's proposed sustainable design strategies for a typical dwelling unit and garden.

Figure 12.19
Solar responsive duplex (Ecolonia, Holland).

50–70% of the heating and cooling energy over 1985 standards

(c) The improved air quality, cool nighttime temperatures, healthy material standards, and natural ventilation strategies allow for almost the complete elimination of summer cooling loads

2. Families enjoy the beauty of indigenous, low maintenance landscapes, and permaculture. The abundance of spring rain is impounded in gardens and water cisterns. Most families install grey water systems for landscaping/gardening. All brown wastes are safely composted by the city and become a valued resource for agriculture
3. Many of the families enjoy the development of small vegetable gardens adjacent to the home, within the residential clusters or in the greenbelt. Greenhouses allow for extended growing seasons

The study concludes with a cost analysis of these sustainable design strategies, measuring the extent of the resource and

monetary savings for each household, the community, state, and nation. The strategies all have a relatively short 1–7 years payback period and can save the community millions of US dollars. These savings would be retained in the community instead of exported to pay for imported resources and energy. This fosters a sustainable local economy.

Community feedback

The authors of Pullman's *Sustainable Community Regenerative Proposal* (including Michael Owen) have made numerous presentations to the community, including the city and university administration, planners, civic groups, citizens, and students. The presentations allowed for many opportunities for feedback and social–environmental research. Questionnaires were developed to assess the effectiveness of the method, the utility of the ecological variables and to solicit suggestions as to ways the community is and/or could be more sustainable. During this research phase, the community strongly agreed with the modelling method and the appropriateness of the ecological variables used in the study. They also supported the selected strategies used, especially those successfully implemented by other communities (during the presentations, the authors illustrated each strategy with successful examples from other communities). In general, the citizens felt that a great deal of progress was being made by citizen initiative but too little was being advanced by the university and city governance. Further analysis of these town and gown perceptions and developments are summarized in the assessment matrix (Table 12.1).

The results of the above research suggest that although both citizens and town/university governance are very concerned about sustainable strategies, citizen's organizations, and initiatives are far more proactive in implementing successful sustainable projects. Concurrent with all these presentations and dialogue within the community, the city was in the process of updating its comprehensive plan. In the process, the city sponsored numerous workshops where many of the issues of sustainability were discussed. The city generated three future growth alternatives: clustered (higher density), 'business as usual' and diffused (lower density), and sponsored a community voting process. By a significant number, the citizens preferred the clustered alternative. The resulting comprehensive plan, its goals and principles are now based upon clustered,