Chapter 14
Fund Raising and Public Relations

14.1 Introduction

Experience shows that developing a racing system from scratch and competing in a cross-country race, such as the American Solar Challenge, costs $ 50,000–190,000, in cash and in kind, over a 2-year period.[1] Most schools cannot afford this expense. Therefore, the solar car team must seek sponsorships from individuals and agencies, principally businesses, outside the school. However, this is on balance a good thing because it provides an opportunity to involve students in yet another phase of real work. And if the university has a business school, then seeking sponsorships is made to order for that school's marketing majors.

Public relations work is coupled to raising funds. Publicity for their participation is the principal *quid pro quo* for the team's major sponsors. Also, the school will want to publicize the solar car team to attract students, and solar car teams *do* attract students. High school and grade school teachers and service organizations frequently request visits by the solar car and talks on solar energy by the team. This builds community support and may result in donations.

14.2 Fund Raising

Budget The first step in fund raising is to estimate how much money must be raised. This requires a budget, which in turn requires a project plan; these two must be developed together. The first try at either will probably not be well informed so revisions will be necessary as the project proceeds. The major categories of the budget might be: solar vehicle, race logistics, energy management, communications, training, administration, and fund raising and public relations. A brief discussion of each of these categories follows. Bear in mind that the figures in the tables that

[1] 2013 dollars; teams have spent far more, and much less. However, this range represents an approximate threshold for fielding a competitive team.

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Table 14.1 Solar vehicle costs

Component	Cost range ($)
Solar cell array	2500–25,000
Maximum power point trackers	2500–4700
Battery	2800–40,000
Motor and controller	3000–21,000
Chassis and body shell	2000–20,000
Wheels, tires, and brakes	2000–14,000
Steering and suspension	2600–10,000
Auxiliary power and instrumentation	2500–7200

follow may represent either cash or in-kind donations. Most of the construction was assumed done by the solar car team, with the principal exception of the body mold. Note also that costs for some of the reusable equipment would be one-time expenditures.

Solar Vehicle Table 14.1 shows the components of this budget category and typical cost ranges for each. Each entry should be taken to include all elements of the component. For example, the array entry includes the solar cells, tabbing, diodes, underlayment, and encapsulate. Only the maximum power point trackers are listed separately. The high end of the range is based on ordering two times the number of cells actually needed. This provides ample replacements for breakage. The battery entry ranges from lead-acid modules at the low end to nickel-metal hydride modules at the high end. The high end of the chassis and body shell range assumes a shell made from pre-impregnated composite material and a commercially made mold. (The mold is very expensive and should be a prime sponsorship target.) The running gear includes wheels, tires, suspension, and steering. The auxiliary power and instrumentation cost includes numerous small components such as wire ties, wire, DC-DC converters for low-voltage DC, running lights, circuit bakers, fuses, cockpit instruments, etc.

Race Logistics Table 14.2 shows logistics costs for a solar race including the Qualifier. The Qualifier is usually about a month and a half before the team must leave for the race. The Qualifier for the 1999 Sunrayce™ was held at the General Motors

Table 14.2 Logistics costs

Item	Cost or cost range ($)
Fuel and oil	600–1900
Vehicle rental	3000–5500
Food	700–3000
Accommodations	2500–5000
Spare parts	1000–1500
Uniforms	500–1000
Fees	8000

[a] The fees include insurance cost and race entry. These costs are now higher than in Chapter 16.

Table 14.3 Energy management

Item	Cost range ($)
Chart route	2000–2500
Computer	1500–2000
Software	200–500
Telemetry	1000–2500

Table 14.4 Communications

Item	Cost range ($)
Radio equipment	500–700

Proving Ground in Milford, Michigan, and required a 5-day round trip by eight people. This was the basis for the budget item cost. The race itself typically requires a 3-week round trip of 4000–5000 miles by about 12 people operating four vehicles (lead, chase, solar, and trailer towing.) The race costs in Table 14.2 includes the rental of two of the service vehicles and fuel. The remaining vehicle was assumed to be obtainable from the school.

Energy Management Two or three persons could travel down the proposed race route during the summer prior to the race. This survey team would collect information about the route, such as road surface conditions, grades, and so on. This information will be invaluable in managing the energy of the car during the race. The cost for this trip follows the "chart route" item in Table 14.3.The computer and software would be used to reduce the telemetry data from the car and to operate a vehicle simulation code. A cell telephone is useful for obtaining weather predictions and of course for communications when on the road.

Communications Amateur radio gives the team great flexibility in choice of communication frequency and in equipment. This may be important in races with many teams. The drawback is that, race team members who will use it must obtain their technician-class radio amateur licenses. Citizen's Band (CB) radio equipment, while more frequency-restricted, is cheaper and easier to obtain.[2] Licenses are not required. Cell telephones may also be used. But cell service may not be reliable over the entire race route. The costs are based on CB equipment in the solar, lead, chase, scout, and trailer-puller (Table 14.4).

Training A major goal of the project should be to finish the car early enough so that vehicle testing and race team training can be done before the race.[3] The cost shown in Table 14.5 shows three or four 1-day trips in full racing configuration.

The race organization holds a workshop in the spring of the year before the race. It is important to send some team members to this event.

[2] Teams must monitor the designated official race CB channel in the chase vehicle.

[3] This may seem obvious. Nevertheless, accomplishing it often turns out to be quite challenging.

Table 14.5 Training

Item	Cost or cost range ($)
Training trips	600–2000
Workshop	1000
First aid training	50–100

Table 14.6 Administration

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Item	Cost or cost range ($)
Telephone	1000–2000
Local trips	500–1000
Paper	100–200
Photocopying	500–500
Postage	300–400
Printing	200–400

Administration The telephone costs in Table 14.6 include costs incurred for fund raising and public relations as well as those associated with design and procurement.

Fund Raising and Public Relations The major expenses in this category arise from preparing and printing the proposal sent to corporations. This proposal, like the race proposal and the structural report, is a pivotal document. The experience of the advisors should be brought directly to bear on its preparation to bring out the best in the students. They strongly desire to produce an excellent, professional proposal. And they are capable of so doing. Often a trip to formally present the proposal at the corporate headquarters is required. This is excellent experience, of course.The "Adopt-A-Cell" program is discussed in more detail in the following section (Table 14.7.)

Methods There are four means of fund raising: donations from individuals and service organizations, sponsorships by corporations, grants by foundations, and grants from government agencies.

To solicit individuals and service organizations, Clarkson University's team produced an "Adopt-A-Cell" program brochure. The brochure contained information about the team, information about the cars used in previous races, and information about the Adopt-A-Cell program. This latter information included four levels of monetary support. Each level included certain rewards, such as a team T-shirt and a

Table 14.7 Fund raising and public relations

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Item	Cost range ($)
Press kits	100–700
Adopt-a-cell	500–700
Corporate proposals	1000–3000
Presentation trips	500–1000

subscription to the team's newsletter. A coupon with blanks to be filled with information about the donor and the level of support was also included.

Corporate sponsorships are obtained by submitting a formal proposal to corporations that could conceivably have some interest. This would include corporations employing a few, but highly placed alumni of the school, corporations that hire large numbers of the school's graduates, and corporations whose business interests might be served by an association with solar car racing. Benefits, such as whether the sponsor's trademark would be placed on the race car, should depend upon the level of support. Less-prestigious locations for the trademark could be the support vehicle, team uniforms, and other promotional materials. Other benefits could include making the race car available for display at events, such as trade shows or technical conferences, in which the sponsor participates. The team's marketing group should work out a list of such benefits to place in the proposal. Of course it is absolutely necessary to deliver the promised benefits once a sponsorship has been received.

The procedure for soliciting foundation support is similar, except that a formal presentation is usually not necessary. There are literally hundreds of foundations in the USA representing a great variety of interests. Some fund projects only within a particular city; others have national scope. The school's Development Office (see next section) will have publications that give details about the foundations' objectives and what they have supported in the past. A foundation proposal must show how the requested support would serve the foundation's objectives.

Government support is also possible. For example, if the state has an organizational unit that fosters energy research, this unit may be receptive to a proposal. However, this unit will probably find it must support all the solar race teams in the state or none of them.

Liaison Every school has an organizational unit that is charged with raising money for new buildings, scholarships, etc. This unit was referred to above as the "Development Office." Some of the same corporations and foundations to which the solar car team may contemplate sending sponsorship proposals for $ 25,000 may also be on the Development Office's "ask" list for millions. It is therefore imperative that the Solar Car Team's Marketing Group work through and with the Development Office, obeying its policies and procedures at all times. This may result in some corporations being off-limits for solar car team sponsorship proposals. However, establishing good relations with the fund raising professionals in the Development Office will result in long-term benefits for both the team and the office. The professionals cultivate corporate contacts over time and can therefore be very helpful to the solar car team. Furthermore, the mentoring effect of a close liaison with the development office is valuable training for the students. Finally, the public relations value of the solar car is very high. This is appealing to potential donors to the school and consequently may help the development office raise money.

The team should also maintain good liaison with the school's legislative representative. This person will have cultivated contacts in the legislature and in units of the state bureaucracy. These contacts may be receptive to sponsorship proposals.

14.3 Public Relations

At first, the engineers on the solar car team may feel that public relation is an annoying interference with their work. However, the contrary is true: it is part of their work. It benefits the school and therefore gains the support of the school. It interests high school and grade school children in building solar cars and therefore helps educators raise the level of knowledge and achievement in secondary and in grade schools. It garners public support; people begin to think, "This is our solar car team."

This work is done in different venues. Fig. 14.1 shows Clarkson's 1995 car, Helios, on display in a shopping mall. This particular trip required trailering Helios for 75 miles and was arranged by a service organization from the town containing the mall. Display boards behind the car show pictures of the design and construction sequence, information about solar energy, and Clarkson University. A steady stream of adults and children peppered the team members with questions. This points to an important aspect of the team's training: all members of the team, business school students not excepted, must acquire a certain level of understanding of the technical aspects of the solar car. This level must be such that when they speak to the public or the press their statements will be correct.

Perhaps the most frequent activity is visits to schools to speak about solar cars and to demonstrate the car. The most inquisitive students are often those in grade school. Their questions are good and sometimes come so rapidly that one can scarcely finish an answer before another question is asked. This interest is most gratifying to the participating team members.

Fig. 14.1 A solar car at a public relations venue

Opportunities to show the car at alternative energy events occasionally occur. These events may involve both static displays of the car and parades. One of most enjoyable features of parades is the obvious pleasure people of all ages take in seeing the car whir by. A solar car is a true, locally nonpolluting vehicle. As such it is an icon of what many hope our transportation system will become.

Liaison Contact should be maintained with the unit charged with public relations for the school. Let us call this unit the "Public Relations Office." This office will usually be staffed by energetic, articulate folks who recognize the public relations value of the solar car project. Keep them informed of the team's activities and of opportunities for photographs and stories. The public relations office will often initiate ideas for public activities and serves as a contact point for persons interested in learning more about the team. Most of these initiatives will be practical. An "unveiling," however, should be most carefully considered.

An unveiling is an official presentation of the solar car to the sponsors and the public. Requests for it will naturally occur in the spring before the race because the car must be finished in this period. Do not agree to participate in such an event unless the car is in all respects race-ready and unless there is no possibility of interference with the preparation schedule. The spring before the race is a very crowded time. Unless the car has been completed in the preceding fall or early in the spring, there will be no time, energy, or money to spend on an unveiling. Once such an event is scheduled, invitations issued, and plans set in motion, it will be nearly impossible to stop. Even if the production schedule should slip, the unveiling must go forward. It will control the project schedule because of the public commitments that have been made. This could lead to public embarrassment, rather than public acclaim, and loss of precious time.

Remember also that student volunteers do not necessarily share the school's public relations goals and have their own heavy scholastic obligations. Extra pressure put on them may cause a loss of workers during the most crucial period of the project. On the other hand, having a non-slippable milestone may help motivate the students. Both outcomes have occurred in the writer's experience.

The best scenario is to finish the car by early spring and to abide by the thumb rule: "substance first; public relations later."

14.4 Newsletter

14.4.1 Public Relations

A newsletter is a way of informing the public, sponsors, and Adopt-A-Cell program participants about the team's activities. It should contain articles about the progress of the car and preparations for the race. Leavening this strictly technical mix should be articles about members of the team. Parents should be particularly

pleased about this. It tends to compensate them for giving up the company of their sons and daughters during holidays and summers spent working on the car. Also, it puts information about the folks on the team before potential employers.

14.5 Management of Funds

It is imperative to train the team to manage its money (and other resources) professionally. The project is too large and diverse for the advisors to maintain detailed management control. Proper accounting records must be kept by the team and reports made at administrative meetings. Otherwise there will be chaos and many headaches for the advisors. Competent student managers have to be found, trained, and held accountable. This of course also serves the purpose of the project, whereas detailed management by the advisors would work counter to it. Nevertheless, final control of funds must rest with the advisors. This should be exercised through the school's purchasing system. Usually, this system will have the advisors listed as the managers of the accounts used by the team. This means that the signature of an advisor will be required for purchases above a certain cost. However, local purchases below this cost may be handled by a voucher recognized by local merchants. The voucher may not require an account manager's signature. The advisor must work with the students to make sure that such a system is carefully supervised.

Choosing student managers must be carefully done, but the talent will be there. The challenge of the project will attract students who want to learn to be professionals and who are willing to make the sacrifices of time that are requisite.