

INTRODUCTION

The ‘make use dispose’ linear model economy is unfit for the sustainability challenges and resource depletion the world is facing, therefore a change towards a circular economy is vital.

Survey: a survey was conducted among leading construction companies to evaluate which sustainability measures from literature are actually being used in practice. The survey was divided into headings (Table 1), and had a response rate of 88%.

Analysis: a multi-criteria analysis (MCA) compared different sustainability measures. Each criteria was given a weight based on sustainability and a weight based on cost-effectiveness.

TABLE 1: Headings used in the Survey

Heading	Number of questions
Project decription	10
Temporary site offices	29
Design/Engineering	35
Procurement	12
Construction	27

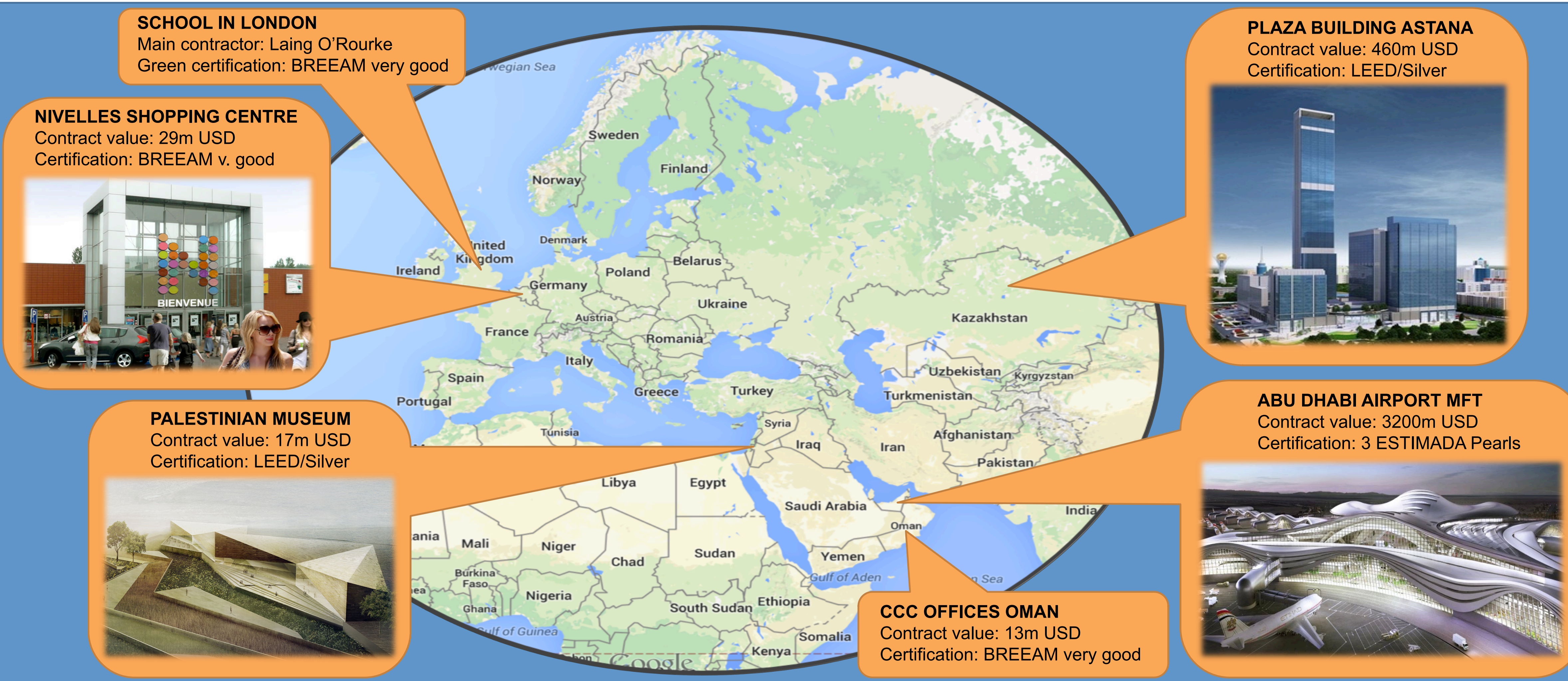


FIGURE 1: Ratings Based on Survey Results

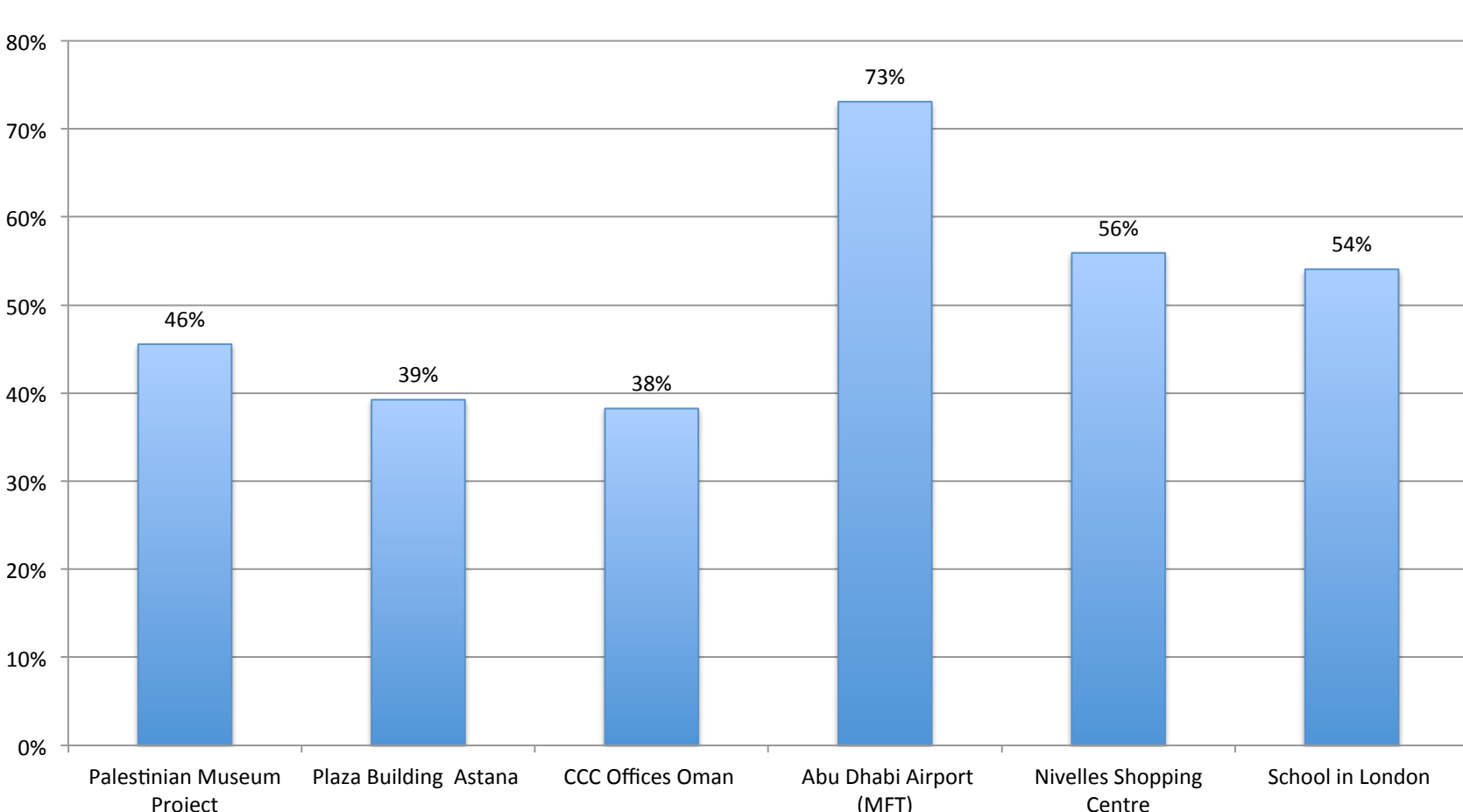


FIGURE 2: Percentage of Waste Recycled and Waste sent to Landfill

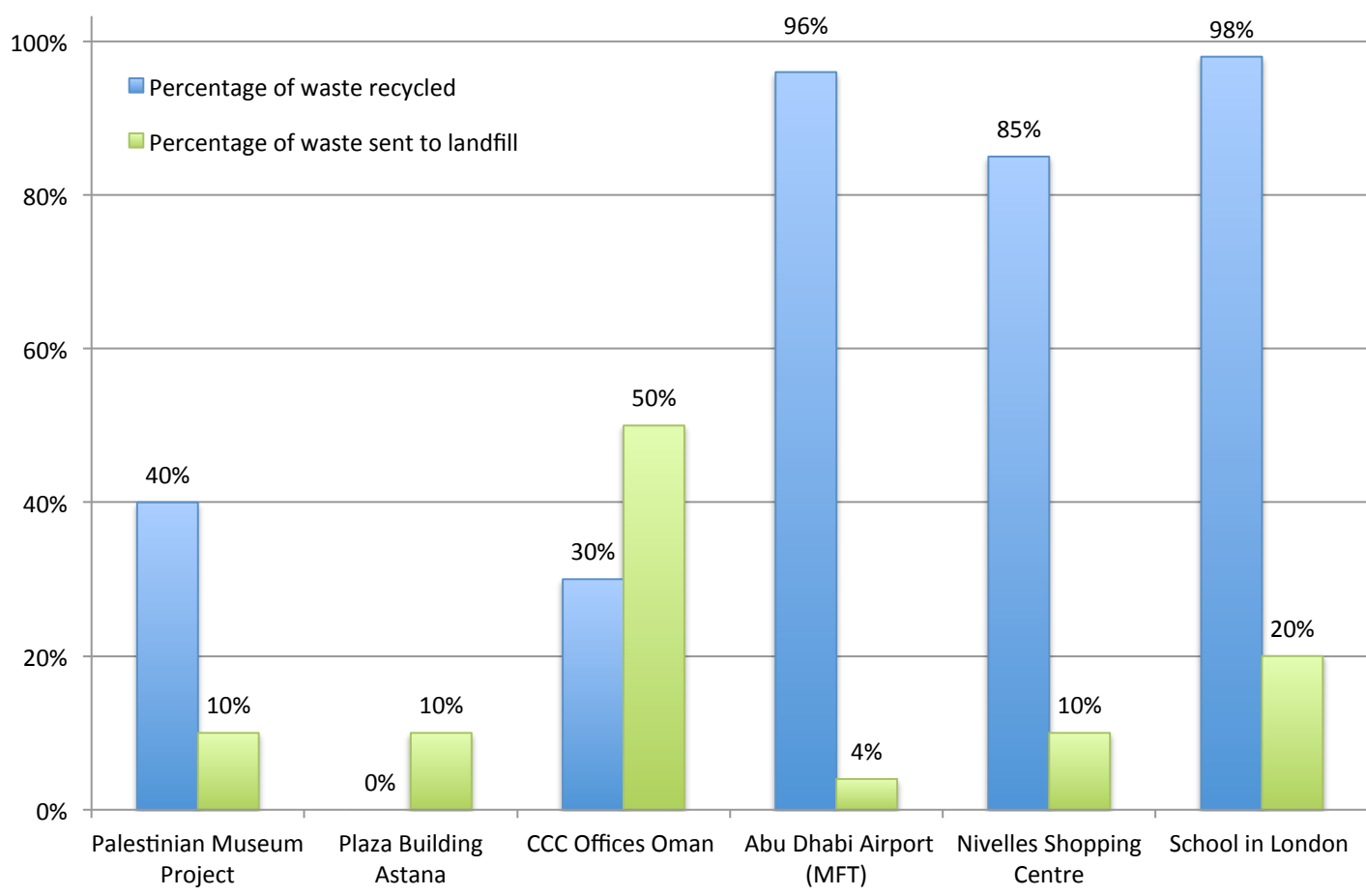


FIGURE 3: Power/Heat Generation using Sustainability MCA weights

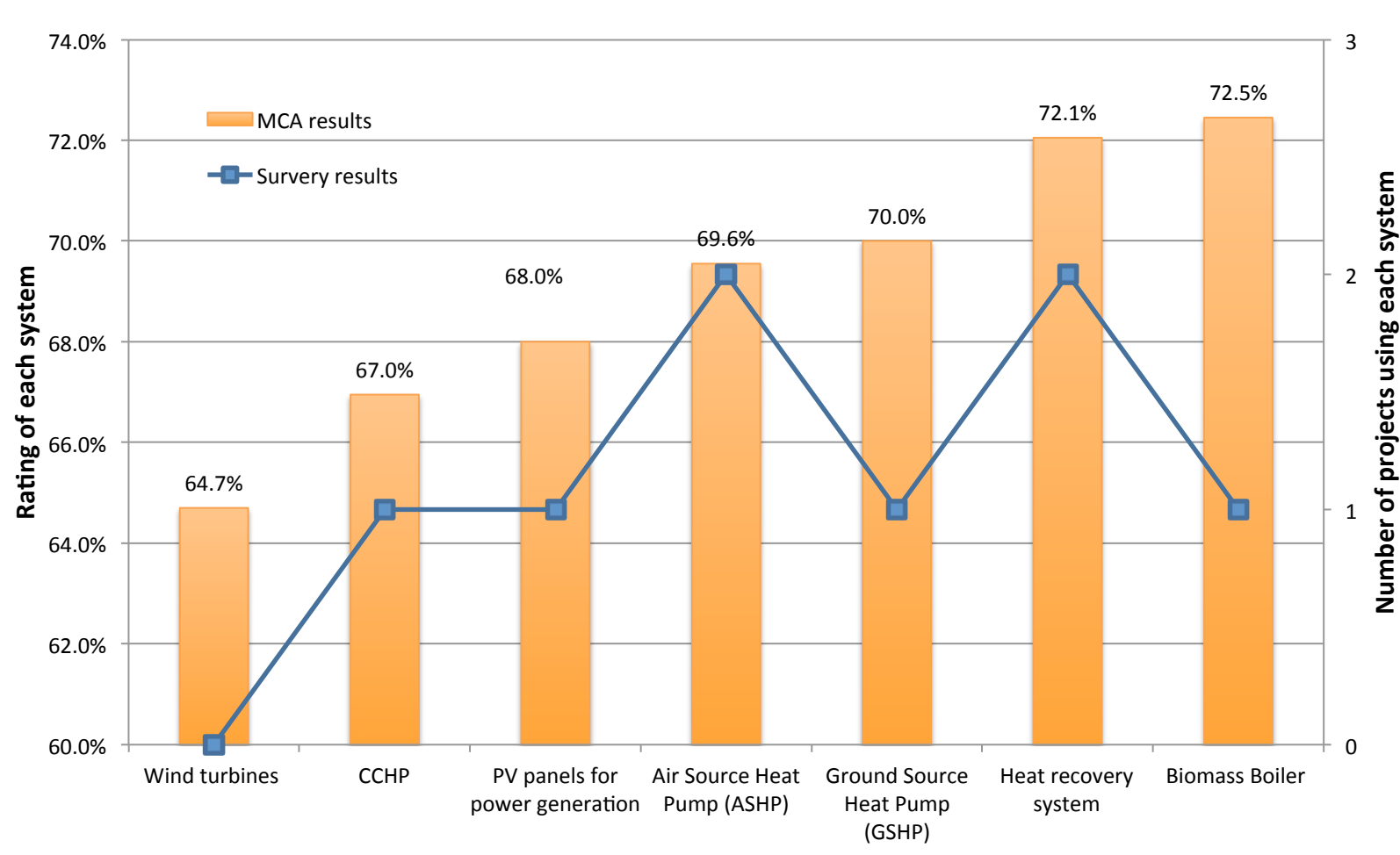
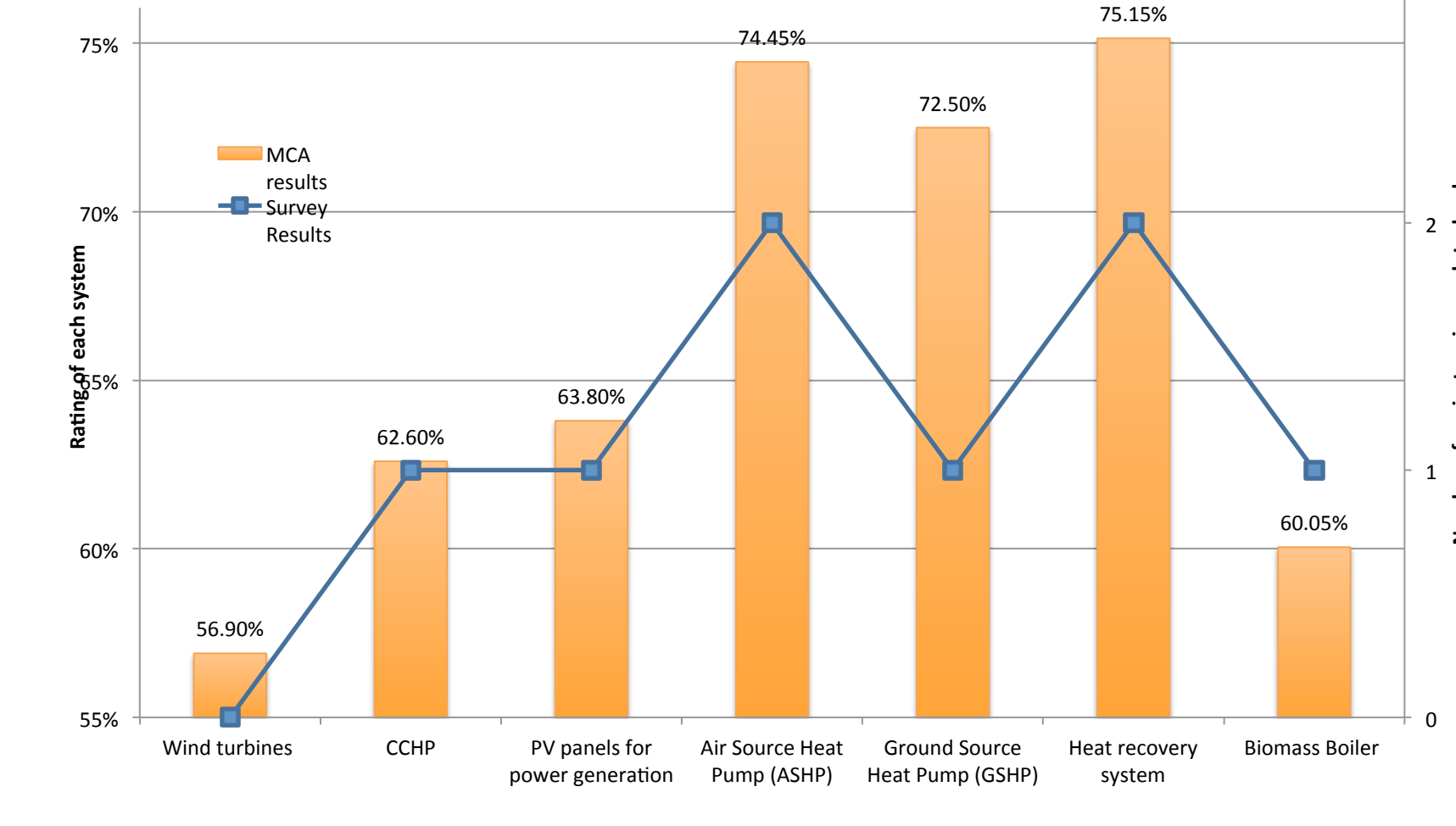


FIGURE 4: Power/Heat Generation using Cost-Effective MCA weights



RESULTS

The ratings based on the survey are consistent with the accreditation ratings, which shows that the survey was well designed and includes most aspects of sustainable building (Figure 1). Buildings in developing countries are less sustainable than the ones in Europe, with the exception of the Abu Dhabi Airport, a high-profile project designed to the highest standards. The survey shows that in developing countries only a small portion of construction waste is being recycled and a substantial amount is sent to landfill (Figure 2) due to the lack of recycling facilities. All the projects have sustainability awards however most of them still rely on landfills. Figure 3 shows the measures with the highest MCA ratings (based on sustainability) are not the ones being used in practise. Once the weights were changed from sustainability to cost-effectiveness (Figure 4), it was found that the construction industry is still very profit-driven instead of being sustainability driven.

CONCLUSION

The findings from this research show that currently the construction industry is not implementing enough sustainability measures for the transition into a circular economy to be possible. The introduction of subsidies and incentives such as tax breaks are recommended to encourage the use of sustainable practices.

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