

Sustainability Policy and Zero-Carbon Communities: The Role of California's Community Colleges

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Overwhelming scientific data confirms that the primary cause of global warming is anthropogenic greenhouse gas (GHG) emissions (IPCC, 2014). The resulting extreme weather events (sea level rise and extended wildfire season amongst others) contrast with the discrediting of climate science at the national level beginning as early as the late 1980s (McCright & Dunlap, 2011). This discrediting has led to a lack of national sustainability policy and has compelled the State of California to take a leadership role in addressing the issue. California's legislative policies and Gubernatorial executive orders include the reduction of GHG and electricity consumption by targeted dates (California Air Resources Board, 2006, California Office of the Governor, 2020). State Agencies, including California's Community College system, have financial incentives to meet these goals.

The core mission of Universities and Colleges is to educate society. Colleges impact society over the long term by exposing students to new ideas and shifting paradigms (Dyer & Dyer, 2017). As the most accessible of higher education institutions in California, the community college system includes 116 colleges educating 2.1 million students annually (California Community College Chancellor's Office, 2021). These colleges are rising to the challenge by encouraging campus sustainability committees to write and implement plans.

This qualitative study (n=8) is a gap analysis of the Santa Rosa Junior College's (SRJC) sustainability plan. A gap analysis frames the problem by seeking input from committee members, analyzing their knowledge, motivation, and organizational support for the plan (Clark & Estes, 2008). The focus of this study is SRJC's Sustainability Committee, a group of 13 members representing Students, Faculty, Classified Staff, Managers, and Academic Administrators. The college's energy reduction plan includes the installation of high efficiency lighting, solar panels, geothermal systems, energy monitoring systems, and the incorporation of environmental classes into the curriculum.

INTRODUCTION

The scientific evidence that global temperatures are rising accumulates with each passing year. The global average temperature for 2016 was the hottest ever recorded and according to the Climate Science Special Report, 16 of the 17 warmest years in the instrumental record occurred between 2001 and 2016 (Wuebbles et al., 2017). Scientists continue to study the long-term effects of global warming, and climate models predict more extreme weather events as temperatures rise. Heat waves will be hotter and last longer and sea-levels may rise, with species extinction and food insecurity in many parts of the world (Intergovernmental Panel on Climate Change [IPCC], 2014).

The IPCC is an international body of scientists organized in 1988 by the United Nations Environmental Program and the World Meteorological Organization. In 2014, the IPCC issued Assessment Report 5 (AR5), the latest version of a series of internationally coordinated reports about on climate science. AR5 states that the evidence of global warming is unequivocal, and that anthropogenic (human-caused) greenhouse gas (GHG) emissions are extremely likely to be the dominant cause of observed global warming since the mid-20th century (IPCC, 2014).

The United States continues to demonstrate intransigence regarding international climate policy. In fact, climate change denial increased between 2001 and 2010, with free-market advocacy groups continuing to discredit climate science and policy, a circumstance that began in the late 1980s (McCright & Dunlap, 2011). Consequently, the Federal government has been unable to create consistent policy to address the issue. Meanwhile, California governors and the state legislature joined the scientific global community by enacting executive orders and legislation to reduce anthropogenic GHG emissions at California public institutions. The most notable of these laws is AB-32, approved by the California Assembly in 2006.

AB-32 (and additional legislation) impacts the California community college system (CCCS). The CCCS is the second largest in the world, serving over 2.1 million students on campuses throughout the state. In aggregate, the system includes 24,000 acres of land, 5,200 buildings and 72.4 million square feet of space (California Community College Chancellor's Office, n.d.). These colleges are expected to develop climate action plans to

reduce their GHG production to levels 40% below 1990 levels by 2030, and 80% below 1990 levels by 2050.

The implementation of these policies may have a significant environmental impact due to the sheer size of the state. California has a population of just under 40 million (U.S. Census Bureau, 2017) and is the 5th largest economy in the world by gross domestic product (California Department of Finance, 2018). With an 840-mile coastline exposed to a rising Pacific Ocean, tracts of suburban development abutting natural habitat subject to annual wildfires, there is incentive to fight global warming. As the largest state in the union by population, California has enough influence to change public policy in neighboring regions.

The CCCS will need sustainability leaders that have knowledge about state requirements and access to available planning tools. The CCCS Chancellor's Office offers sustainability planning templates and other third-party resources. The purpose of this study is to understand the capacity of SRJC's sustainability committee to write and implement a sustainability plan, in accordance with the institutional goal of creating a strong culture of sustainability and the Chancellor's goal of meeting state guidelines.

SUSTAINABILITY IN HIGHER EDUCATION INSTITUTIONS (HEIs)

Research shows that HEIs signing a declaration, charter, or incentive related to sustainability are more likely to implement sustainability initiatives in their institutions (Lozano et al., 2014). However, well-meaning institutions may sign a declaration but lack the initiative and accountability measures that might compel them to implement meaningful sustainability measures (Sharon & Wright, 2006).

Moreover, the perceived cost of implementing GHG reduction strategies may cause some institutions to pause, though the success of a program depends on how it is measured and whether it is valued (Faghihi, Hessami, & Ford, 2014). Because funding priorities may be a challenge, the use of existing charters or templates is an efficient way for an institution to begin the process of institutional sustainability. These tools eliminate one more organizational obstacle to the implementation of a plan.

HEIs may take a leadership role in establishing operational sustainability programs while co-evolving with society, by transforming to a more integrative view of sustainability (Ferrer-Balas et al., 2008). They play an important role in developing competencies for future society by generating new knowledge and imparting that knowledge to students (Rieckmann, 2012). HEIs create change by creating analytical tools to consider complex problems, performing real-world sustainability research, and by situating universities as transdisciplinary agents of change (Stephens, Hernandez, Roman, Graham, & Sholz, 2008).

Sustainable approaches addressing social, environmental, and financial sustainability are commonly referred to as the "the three

pillars" of sustainability (Pati & Lee, 2016). A dozen or more international and national declarations, charters, and initiatives have been written over the past 30 years encouraging HEIs to actively participate in implementing sustainable measures in their institutions, with over 1,000 institutions having signed one or more of the declarations (Lozano et al., 2014). The Kyoto Protocol, Talloires Declaration and the American College and University Presidents' Climate Commitment (ACUPCC) are among them.



Figure 1. Small wins lead to bigger wins. Image credit: Robert Ethington

SUSTAINABILITY AT SANTA ROSA JUNIOR COLLEGE (SRJC)

This study will examine SRJC, a college serving approximately 28,000 commutes, including many first-generation college students. Governing board policy includes energy and water conservation, GHG reduction, fuel reduction, renewable energy expansion, and the use of environmentally sensitive building materials. SRJC signed the Talloires Declaration in 2011 and ACUPCC in 2018.

Despite these actions, the sustainability committee believed the college was falling short. They advocated for and included a sustainability goal in the college's strategic plan, which is reviewed during the 3-year accreditation cycle. The strategic planning goal stated that SRJC would "create a strong culture of sustainability." To support this goal, the sustainability committee wrote an 18-goal framework asserting that "[the] challenge is to develop a process for decision-making and implementing plans guided by research, community standards, and state and national goals. We must...establish a performance measurement system that tracks progress for the strategic plan scorecard" (SRJC Sustainability Plan, 2015).

METHODOLOGY

The purpose of this study was to examine the capacity of SRJC's sustainability committee to write and implement a sustainability plan. The plan will align with state mandates and the stated organizational goal of creating a "strong culture of sustainability." The CCCS is beginning to address legislative requirements to monitor and reduce GHG emissions, reduce energy and water use, divert waste from landfills and encourage alternative transportation choices. Community colleges will need plans with measurable goals.

The methodological framework for this study was Clark and Estes' (2008) gap analysis. The qualitative study is inductive, with findings and hypotheses emerging from interviews, document review and observations of participants' environments. The research questions were as follows: 1) To what extent do the college's sustainability committee members have the required knowledge, skills and motivation to write and implement a new sustainability plan for the college? 2) What is the interaction between organizational culture and context, and the sustainability committee's knowledge and motivation? 3) What are the recommendations in the areas of knowledge, motivation, and organizational practice that will allow the college's sustainability committee to write and implement a new sustainability plan?

The participating stakeholders were 8 of the 13 available members of the SRJC's sustainability committee. The committee is represented by faculty, staff, students, and administrators. Members may volunteer, are appointed, or participate due to their job title within the college. The diversified membership encourages variation in perspectives about sustainability, including environmental stewardship, economic sustainability, and social justice and equity issues.

The data collection instrument was a series of questions designed to elicit the thoughts and experiences of the participants. The process was inductive, and concepts and theories were built bottom-up from the stories conveyed by the participants (Merriam, 2016). 60-minute recorded conversational interviews were conducted on campus. Participants were encouraged to speak freely about their perspectives without judgement or editorial comment.

FINDINGS AND RECOMMENDATIONS

There are four knowledge influences. Knowledge assets included a strong awareness of third-party rating instruments and a strong sense of the themes to address in a new sustainability plan. Emergent findings revealed that participants had reflected on the themes needing more attention in the new plan. Two knowledge gaps included unfamiliarity with prior sustainability goals and confusion about measurable and timebound goal setting.

There were two motivational assets. Members were highly motivated to improve sustainability measures in the college, and had the confidence needed to write and implement a sustainability plan.

There were two organizational assets and two gaps. Assets included strong organizational support for improving sustainability issues and integration into the college's strategic planning process. Evidence includes sustainability goals in board policy, the strategic plan, facilities master plan and design standards. Gaps included the lack of coordination between managers implementing the plan and a lack of publicity around these initiatives.

For the college to make progress, the sustainability committee should create SMART goals (Specific, Measurable, Achievable, Realistic, and Timebound). The first sustainability plan was a marker for the college, demonstrating that the college was taking sustainability seriously. To the extent that the committee grew in significance and influence, the plan was a success. The next plan should measure progress towards legislative and gubernatorial goals with greater detail.

College leadership committed to the ACUPCC and will be expected to report annually on the amount to GHG produced by the college. This aligns with State mandated goals. The committee should also consider using third-party templates to create the next plan, such as AASHE (STARS) and USGBC (LEED). These templates provide a simple measurement of progress against other Colleges and Universities within their network. More importantly, membership in these organizations provide SRJC to tap into a broader knowledge base and share resources.

There is no lack of personal motivation for committee members but a coordinated message about the committee's progress is an issue. Learning to coordinate the sustainability message by leveraging the institutional planning process would help raise awareness of small wins. Those wins in turn will lead to larger gains. A good example of this process is the placement of small infrastructure items such as bicycle racks, water bottle filling stations and electrical chargers. Those small wins led to funding for solar photovoltaics, a microgrid grant, and a full-time sustainability manager.

Additional organizational support would allow the committee to better coordinate efforts with the City. Current initiatives include ensuring support for student housing on campus, which will lead

to less traffic on city streets and provided much needed housing. Coordination with the City recently led to funding for a bicycle and pedestrian bridge that will link the campus to local bike routes through the city. Additional goals include closing a street that separates several buildings from the rest of the campus.

Finally, integrating a sustainability curriculum beyond the Environmental Sciences is a stretch goal that will require more work and effort. Curriculum requirements for student transfer is coordinated at several levels, including four-year institutions accepting Community College students. Nevertheless, Faculty members have expressed the hope that one day, a class in environmentalism will be a requirement for graduation or transfer.

The mission of SRJC is to cultivate learning in its diverse community through the physical, social, aesthetic, emotional and ethical development of its students. SRJC prepares students for transfer, provides career technical education, and improve students' foundational skills. They encourage lifelong learning by seeking joy, personal and professional growth. SRJC supports the economic vitality, social justice and equity, and environmental stewardship of their region (SRJC website, n.d.).

These small wins have provided SRJC with the beginnings of a strong culture of sustainability, their visionary goal. Through the promotion of environmental stewardship, financial sustainability, and raising consciousness around equity, SRJC has taken concrete steps towards meeting the institutional strategic plan. Achieving these goals has added to the economic and ecological resiliency of the college and has contributed to the reduction of greenhouse gases mandated by the state.

Ultimately, the primary goal of sustainability planning is to encourage development to meet the needs of today, without compromising the needs of future generations (Brundtland Commission, 1987). Reducing the college's dependency on carbon energy reduces global impacts. Most importantly, SRJC is influencing their students to make informed decisions about the consequences of global warming through written plans and action.

CONCLUSION

There are inherent tradeoffs between economics, ecology, and equity. For example, the cost of environmentally friendly solvents can be more costly than those that are chemical based, and fees to subsidize public transportation is passed along through higher student fees. These tradeoffs are not reconciled in this study but should be considered, as the college grapples with priorities around sustainability and equity.

Nevertheless, SRJC's commitment to sustainability has provided an example of leadership for public agencies to follow. Faculty, Staff and Managers have demonstrated sustainability leadership with lessons that can be used in the classroom. Students have had the opportunity to participate in "hands-on" policy making.

The intent of this study was to evaluate the knowledge, motivation and organizational support for writing and implementing a new sustainability plan. SRJC wrote their first sustainability plan in 2015 with ambitions to complete the plan in 2018, concurrent with the 100-year anniversary of the college. The plan was in many ways aspirational, but clearly stated that the college had the ambition of becoming a leader in sustainability within the CCCS. Within three years the college achieved many of these aspirational goals.

Going forward, this study provides specific recommendations and techniques for continued sustainability planning and goal setting. It provides an analysis of the cultural components of the college and encourages committee members to continue to advocate.

Regardless of these successes, the story is most inspirational. It is a model that other colleges may follow. This is the story of a small group of dedicated sustainability advocates deliberately creating the college's first sustainability plan, without the outward support of the (then) governing board and college president. With the quiet support of a single administrator who was responsible for the strategic plan, the committee was able to leverage this goal into the facilities master plan and the bond spending plan, which eventually led to significant capital improvement projects and contributed to sustainability planning momentum on campus.



Figure 2. 4MW solar installation (big win). Image credit, Donald Laird.

FINAL THOUGHTS

The larger context for the study is motivated by the alarming rate of climate change globally. California has taken a leadership position by balancing economic interests with laws to reduce GHG production. The Los Angeles Times reports that "the state has pledged to reduce greenhouse gas emissions to 40% below 1990 levels in fewer than a dozen years while dramatically increasing renewable energy and reducing the reliance on fossil fuels...that process – weighing the competing interests of economic growth and environmental protection – has always been a challenge, often taken up first in California and then the rest of the country" (Shribman, 2019).

Incremental institutional reductions in GHG make a difference over time. SRJC is part of the second largest community college system in the world. By embracing sustainability policy, SRJC has become an example for colleges in other states to follow, through the influence that California wields as a first mover.

One sustainability committee member expressed their thoughts on SRJC's sustainability journey, stating that "the ultimate goal is for the institution to realize that everything we do is about sustainability. So that we don't even call it sustainability anymore, it's just what we do. We have to balance our budget; we have to make sure that our services are equitable. And we have to take care of the environment"

The quote demonstrates an awareness of the environmental impact generated by all aspects of the college's activity; a recognition that economics cannot be separated from the decision-making process of the college; and recognition that equity must be considered in the distribution of resources. Once sustainability is fully incorporated into the ethos and culture of the college, sustainability planning becomes second nature.

For many colleges, the first step is the hardest. There are many challenges to overcome in gaining institutional traction, particularly with deliberative governance seeking input from all. As demonstrated by this college however, organizational change is possible with persistence, patience, and determination. Change can come from a small group of dedicated advocates, even from those with seemingly little influence. The hope is that this story will inspire individuals at other colleges to take the first step towards a cleaner future.

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