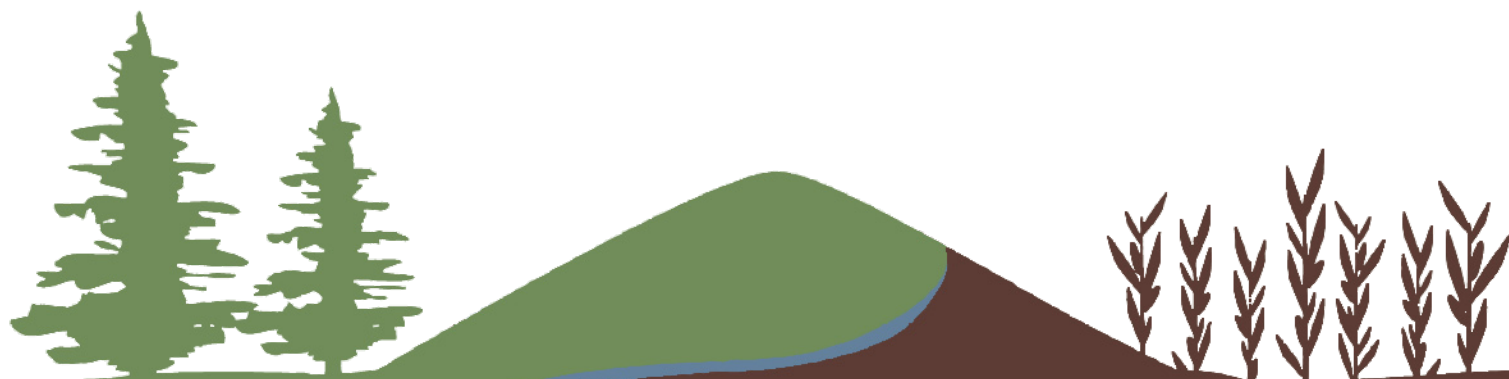


The Environmental Assessment

THE OFFICIAL NEWSLETTER OF THE PENNSYLVANIA ASSOCIATION OF ENVIRONMENTAL PROFESSIONALS

Spring - Summer 2013



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A MESSAGE FROM
President Eric Buncher



I am honored to address members in this, my second president's message. Although I have been a member of the Pennsylvania Association of Environmental Professionals (PAEP) for 16 years, I have had the opportunity to meet only a small percentage of our members. With every new acquaintance, I develop a better understanding of the potential of our great organization and how fortunate I am to have you as members.

As some of you know, my goal is to improve PAEP based on input from PAEP members, sections, committees, and Directors. To date, the heart and soul of this input has focused on programs and benefits to improve the careers of Pennsylvania's Environmental Professionals. Towards this end, one of the first acts of the 2013 PAEP Board of Directors was to have \$1,500 allocated to each section for local programming. Section Chairs are as follows:

Western Section: Natalie Shearer, Mark Maguire

Central Section: JT Graupensperger, Wayne Kober

Eastern Section: Eric Rosina

Pollution Prevention/Energy Efficiency Roundtable: Mike Parrent, Jan Warnick

Call your section chairs. Join their program committees. Help them spend their money. I salute them for their passion in putting together local events for members.

As your 17th president since PAEP's inception in 1985, I intend to utilize committees to improve the organization. I will be counting on you for assistance on these committees. Join these committees to give back to your profession and leave a legacy of improvement for environmental professionals across the state.

We have made great progress. Mike Parrent and Jan Warnick chaired the 2013 Conference Committee and made PAEP proud by putting on a great conference attended by 78 environmental professionals. Duane Peters chairs our Government and Legislative Committee. Angela Schreffler chairs our Student and Scholarship Committee. Darlene Stringos-Walker chairs our Newsletter Committee and Karl Mason Award Committee. Linda Zug chairs our Membership Committee. Chris Phillips chairs our 2014 Conference Committee. All of these committee chairs are seeking members to actively support their missions. I am extremely fortunate to work with these people.

Many of our new programs are making great strides. From efforts of the Government and Legislative Committee, PAEP has multiple representatives on the State Transportation Innovation Council. From efforts of the Student and Scholarship Committee, PAEP, last year, awarded its first annual scholarship and is offering free memberships to all students in environmental majors in Pennsylvania colleges and universities. From efforts of the Membership Committee, PAEP continues to offer a buy one; get one free membership initiative to bring in new members.

Additional committees need established to cover important missions including shale gas, employment, fundraising and continuing education credits. I challenge you to helm or help on any one of these committees and move PAEP in the right direction.

It is critical that we do a better job of publicizing our efforts to improve the professional lives of our members. By spreading the word of our accomplishments, we will be better positioned to increase membership. The greater our membership, the greater our resources and influence. Generating new members can only be done with your support.

PAEP has a responsibility, unlike any other organization in Pennsylvania. Integrity, honesty and fairness must drive every action we take. Your support in helping PAEP meet its responsibilities is critical. I welcome your ideas and assistance. I look forward to working with each of you.

Sincerely,

Eric H. Buncher, President

Pennsylvania Association of Environmental Professionals

Editor's Note

Welcome to the new streamlined version of the PAEP Environmental Assessment newsletter. The previous newsletter format was a journal-type setup, which required much behind-the-scenes effort for the solicitation of articles and resulted in a larger product. We are in a different time; we want our information and updates to be quick and easy. Because we are all using electronic media daily, if not constantly, the decision was made to use those web management tools to keep the PAEP membership informed of section events and general news of interest. The PAEP website and the news updates are monitored frequently. The goal of this newsletter is to not be redundant in those efforts and to have a shorter informative product for our membership. Please refer to the website for section events and updating of those events between the issuance of the newsletters. Also, PAEP board meeting minutes are also available on the website. Those meetings are held monthly, and each committee provides a status of their efforts. If we list the contact person, please refer to page 1 of the newsletter for their contact information.

>>> SECTION EVENTS

Eastern Section

New Eastern Section Chair Eric Rosina has graciously volunteered to organize events for the section. If you want to assist Eric or have any ideas for programs, speakers, or locations, please contact him.

Eric Rosina
609-918-0200
erosina@actengineers.com

Central Section

The Central Section held a behind-the-scenes tour of the PA Natural Museum in April.

J.T. Graupensperger
717-564-5705
jgraupensperger@ascgroup.net

Wayne Kober
717-502-0179
wkober@live.com

Western Section

The Western Section toured the Phipps Green Roof on May 30.

Natalie L. Shearer
800-365-2324
nshearer@dawood.cc

Mark S. Maguire
800-365-2324
mmaguire@cecinc.com

P2E2 Section

The next event for the Pollution Prevention and Energy Efficiency (P2E2) Section is being planned.

Mike Parrent
570-895-6105
Michael.parrent@us.army.mil

Janet Warnick
570-826-2511
janwarnick@state.pa.us

Committee Updates

Student and Scholarship Committee

First Annual PAEP Environmental Science Scholarship Winner Announced

The scholarship committee awarded its first scholarship for \$1,000 to Chatham University student Alexandra Ratliff at the 2013 PAEP annual meeting. Alexandra, a recent graduate of the environmental science major, was involved many activities and served in several leadership roles at Chatham, including Student Government, Ambassador Coordinator, Mortar Board, the Student Athlete Advisory Committee, collegiate volleyball, and water polo, all while maintaining a 3.86 GPA. She has received numerous awards, including the Presidential Merit Scholarships, World Ready Women Academic Scholarship, and a nominee for the Chatham University's Rachel Carson Environmental Award. She was also on the Dean's List of Honor Roll for most of her academic career. In her spare time, Alexandra worked at the Miami University of Ohio Research Experience and interned at Tree Pittsburgh (an environmental non-profit organization). Alexandra hopes to contribute to the environmental science research fields, possibly in restoration/conservation or climate change. Congratulations, Alexandra! And congratulations to all the applicants for their stellar college experience. We hope you apply again next year!

Student Paper Contest Winner Announced

Leah Kahler was announced as the winner of the student paper contest at the 2013 PAEP annual meeting. Leah, a Montana native, pursued an undergraduate degree in fashion design and marketing in London. After working in New York City for a few years, she decided to pursue her passion of studying the environment full time. Her specific interests include sustainable development and resource management-- how to foster a sustainable and harmonious relationship between humans and the environment. Leah hopes to use her experience in consulting in the private and public sectors. Leah's paper is included at the end of the newsletter. Congratulations, Leah!

Student Committee to Meet in the Fall

The Student Committee will meet as a whole in the fall to discuss opportunities at local colleges: how PAEP can assist students by engaging student chapters, holding panel discussions, developing a mentor/mentee program, etc.

Two Subcommittees Will Meet

Scholarship subcommittee

The scholarship subcommittee will meet in July to start the 2013-2014 scholarship process. At the initial meeting, we hope to select a scholarship chair, revise application and procedures, discuss criteria and processes that worked and didn't work last year, suggest new ideas, determine the number of scholarships and amounts of scholarships to award, and divide tasks among members. A committee member can assist with all of these items or only for a specific aspect (i.e. if you would like to review applications, but do not wish to revise application, you are welcome to!) Phase I (up to advertisement) anticipated from July-September (meeting with email correspondence). Phase II – Solicit and collect applications from September-November. Phase III – Review applications and award in November-December.

Joint Golf Outing Scholarship Fundraiser subcommittee

The subcommittee will work with WTS committee members to decide on date of outing, location of outing, awards & prizes, fundraising opportunities, corporate sponsor recruitment, and general advertisement. The volunteer commitment is generally completed within 3 months.

Please contact the PAEP Student and Scholarship Chair, Angela Schreffler, at aschreffler@mbakercorp.com if you are interested in serving on either subcommittee. Open to all PAEP members (both committees can support conference call meetings)!

Membership Committee

Membership Opportunities

Membership numbers are looking good for 2013 at 339, but our goal is 400. The Buy One Get One (BOGO) offer is still available for anyone who was not a member in 2012. This is a great opportunity to sign up your colleagues or friends in the environmental business. Membership renewals are still being accepted. All college students are free.

PAEP Free Student Membership

Open to ANY and all students, your 2013 PAEP membership is FREE! Simply fill out and submit the membership application available on www.paep.org (choose “graduating environmental science senior”; however, the free membership is available to all students). Benefits include the opportunity to post your resume on PAEP’s website, receiving environmental job opportunities in your inbox, networking with environmental professionals, and access to the membership directory, which includes over 300 members and corporations!

Government and Legislative Committee

PAEP and STIC

In 2010 the Federal Highway Administration introduced the State Transportation Innovation Council (STIC) to states. Pennsylvania’s STIC is a unique forum that blends together expertise and experience of participants (called stakeholders) to provoke discussions on how to deploy successful innovations quickly. The main goal of the STIC is to get innovation into practice as soon as possible so that users can reap the benefits of a smoother, safer, more efficient transportation system. The STIC is co-chaired by Secretary Barry Schoch and FHWA Administrator Renee Sigel. It includes members from PennDOT, FHWA, and related organizations of which PAEP is one. Technical Advisory Groups (TAGs) have been created to review, evaluate, and provide guidance on potential benefits and uses of initiatives or techniques. TAGs are comprised of industry experts who look for successful practices that have been used. TAG areas are listed below, and PAEP has representation on four of these committees as indicated below. Members will be rotated on a two-year cycle. Those who wish to represent PAEP on the STIC Committee must be active members, preferably those who have previously held PAEP board or officer positions. Many of the current members are into their second year, so if you are interested in participation to represent PAEP, requirements include monthly conference calls and review of proposals and white papers submitted to the committee contact, Darlene Stringos-Walker. Darlene has recently replaced Duane Peters as the STIC/PAEP liaison.

State Transportation Innovation Council (STIC) Technical Advisory Groups (TAGs) are in the following areas:

- Construction
- **Design - PAEP**
- **Environment - PAEP**
- Intelligent Transportation Systems
- Maintenance
- Materials
- **Project Delivery - PAEP**
- **Public Outreach - PAEP**
- Safety
- Technology

More information on the TAG actions can be found at www.moderndot.pa.gov.



2013 Membership Directory

This is the first year that the Membership Directory was put on a jump drive and distributed to the members who attended the Annual Meeting in May. For those who did not attend the meeting, the jump drives were mailed directly. This saved us the printing cost and the extra cost of mailing the larger printed document. Any member who joins between now and December 2013 will receive the directory in the jump drive form.

Newsletter Committee

The newsletter committee is looking for volunteers to assist in compiling material for the newsletter. Please contact Darlene Stringos-Walker. Newsletters are planned for Fall and Winter 2013.

Board Elections 2013

It is not too early to start thinking about running for a Board seat. Elections are right around the corner, and we would love to have some new ideas and fresh faces. There are six seats available. If you are interested in being on the Nominating Committee, please contact Eric Buncher.

Annual Meeting 2014

It's not too soon to start thinking about the 2014 PAEP Annual Meeting. Locations are being considered, but we will need committee members and volunteers for numerous tasks. If you have never participated in this type of planning, it is fun—but it takes many people to help pull together this type of event. Christine Phillips is the Chair; please contact her if you would like to assist, no matter how small the role. There will be topics and ideas needed for the Technical Sessions, so think about an interesting problem you have encountered or an innovative technique or solution you may have implemented—maybe some kind of regulatory issue that you have handled—and take the time to write up a paragraph. Present a topic at the 2014 Annual Meeting. That is the best way to find topics that are relevant to all environmental professionals throughout the state.



Post your company job vacancies or post your resumes on our website. PAEP provides this service to its members.

PAEP strives to provide the public with an understanding of the environmental professional while providing its membership with opportunities to interact through networking, educational seminars, its newsletter, its annual conference, meetings, and other sponsored events.

For more information on PAEP, any of its corporate sponsors, or to find out about available sponsorships, please email, info@paep.org or send an inquiry to, Pennsylvania Association of Environmental Professionals, 174 Crestview Drive, Bellefonte, PA 16823.



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Pennsylvania's Conservation Heritage: **Documenting the Story Through Oral Histories**

Introduction

The Commonwealth of Pennsylvania has a remarkable history of conservation dating at least to the late 19th century when industrialization rapidly took hold and when environmental resources were impacted and, in many cases, depleted by economic growth. Examples of conservation efforts are apparent in events such as the creation of a State Forestry Commission, Fish and Game Commissions and Departments of Health, Mines and Mineral Industries, and Forests and Waters in the late 19th and early 20th centuries. Conservation efforts are apparent as well in the efforts of people to conserve and protect environmental resources such as Gifford Pinchot who served as head of the State Forestry Commission and twice served as governor where his agenda included conservation. This history is also apparent in the creation of organizations such as Trout Unlimited whose work advocates conservation. And, conservation efforts are apparent in public policy when, for example, numerous conservation laws and regulations were enacted in the 1960s and 1970s.

Remarkably, however, this rich history has never been comprehensively documented. In the arena of public policy, especially, little has been documented and illustrated in any publicly friendly format. Thus, it is a story that largely remains untold but for a few individual histories of people, places, events and organizations. Moreover, no oral histories have been gathered from individuals significant to conservation history.

Project Purpose and Methodologies

The purpose of this project is to collect 12 oral histories of individuals who were or have been involved in conservation efforts and movements in Pennsylvania in the mid-to-late 20th and early 21st centuries. The oral history interviews will be audio-digitally recorded. Each will be summarized in 2-3 page write-ups.

Prior to commencement of the interviews, the historians will collaborate to develop common questions to be asked in each interview.

A project final report will be prepared that will include a summary of the project, a write-up of each interview, recommendations on long-term archival storage and recommendations for additional research. Moreover, the final report will discuss how the interviews can be utilized for further work on telling the story of conservation in Pennsylvania. Examples include: 1) that the interviews can be used to inform a written narrative; 2) that the interviews or excerpts thereof can be downloaded to a conservation history website (or an existing related website); 3) that the interviews or excerpts thereof can be used to inform a documentary on conservation history, and; 4) that the interviews or portions thereof can be used to develop a public presentation on conservation history.

Project Timeframe

The project will commence in early June, 2013, when the project historians will develop a common list of

questions. Interviews will be scheduled and will commence in mid-June. All interviews will be completed and a final report submitted by September 15, 2013.

Interviewees

The following interviewees have been identified:

- **Pete Duncan**, former Secretary of DER and Executive Director of the PA Game Commission
- **Art Davis**, former Secretary of DER
- **William Forrey**, former Director of State Parks at DER
- **Michael DiBeradinis**, former Secretary of DCNR
- **Caren Glotfelty**, former Deputy Secretary, DER
- **James Seif**, former Secretary of DEP
- **David Hess**, former Secretary of DEP
- **Larry Schweiger**, Executive Director, National Wildlife Federation
- **Rick Carlson**, former Policy Director, DER and DCNR
- **Joel Tarr**, Emeritus Professor of History, University of Pittsburgh
- **Sam Hayes**, Emeritus Professor of History, University of Pittsburgh
- **Suzanne Seppi**, former Executive Director, Group Against Smog & Pollution

Project Oversight

A Pennsylvania Conservation Heritage Advisory Committee has been formed consisting of volunteers associated with and/or interested in this history or who have otherwise been

“By fostering the **next generation** of environmental professionals,
we also serve our industry and ensure the
continued **improvement** and **enhancement**
of the world around us.”

or remain active in conservation. This is a voluntary committee that meets several times a year to explore and develop ideas, programs and research to document Pennsylvania's conservation heritage.

This project will be overseen by two individuals who are members of this committee: Wayne Kober and Brenda Barrett.

Project Historians

Two professional historians will be engaged for this project: Kenneth C. Wolensky and Vagel Keller (it is anticipated that each historian will interview six individuals):

Dr. Wolensky served 25 years in State Government in various policy positions in the Governor's Policy Office and the Departments of Health and Insurance and as a historian with the Pennsylvania Historical and Museum Commission from 1997 to 2011. He has authored over 25 articles and five books on Pennsylvania history including a recent biography of former Pennsylvania Governor George M.

Leader entitled “The Life of Governor George M. Leader: Challenging Complacency” published by Lehigh University Press. Ken now consults on history projects, writes and teaches for Lebanon Valley College and he is president of the Pennsylvania Historical Association. He resides in Grantville, Dauphin County.

Dr. Keller is an independent scholar whose research focuses on technology and the environment. A former adjunct professor at Carnegie Mellon University, he has lectured on the material causes of natural disasters in modern American and World History. He was project historian for the joint PAEP/PHMC Karl Mason project. In addition to the biographical essay on



Image: NASA

Mr. Mason in Pennsylvania Heritage magazine, Vagel's publications include an essay in the recent special edition of Pennsylvania History, devoted to the future of the Commonwealth's environmental history. He resides in Pittsburgh. ■

Conservation Heritage Program



This valuable and unique program was presented to the PAEP Board and eagerly supported. Any questions should be referred to Wayne Kober.

2013 PAEP Annual Meeting

MAY 8-10 • TOFTREES RESORT

"The Power Within Our Environment"

2013 PAEP Annual Meeting a Big Success

The 2013 PAEP Annual Meeting, held this year at Toftrees Resort in State College from May 8-10, proved to be a big success.

The turnout for the event was high with seventy-five people in attendance.

The program sessions were diversified this year. Topics covered included shale gas, wetlands, energy management, cultural resources, regulatory and permitting updates, and sustainability.

The meeting was a wonderful opportunity for networking, updating each other on environmental issues and timely topics, and sharing in each other's company with lots of good food and fun.

Several awards were given out at the meeting.

The Karl Mason award, given to both an individual and to a program, project, or organization, was created to commemorate Pennsylvania's first state environmental administrator. The award is for significant contribution to the betterment of Pennsylvania's environment.

This year's organizational winner was Penn State University's Center for Dirt and Gravel Road Studies. Cindy Adams Dunn of the Department of Conservation and Natural Resources was the individual recipient of the award.

The first annual PAEP Environmental Science Scholarship, in the amount of \$1000, was awarded to Chatham University student Alexandra Ratliff.

The winner of the student paper contest was Leah Kahler with her submission, "Sustainable Product Design and Consumerism Dynamics as Drivers of Sustainability."

A special thanks to the P2E2 committee, to our sponsors, and to the exhibitors for making the 2013 PAEP Annual Meeting possible.

The 2014 annual meeting will be planned by the Western Section. Christine Phillips is the lead for the program content; contact her by e-mail to submit your ideas. ■

Award winners pictured to the right:

Darlene Stringos-Walker presents the Karl Mason award to individual winner Cindy Adams Dunn.

Darlene Stringos-Walker presents the Karl Mason award to Steve Bloser of Penn State University's Center for Dirt and Gravel Road Studies.

Virginia Bailey presents the first annual PAEP Environmental Science Scholarship to Chatham University student Alexandra Ratliff.



A New Era for

The Pennsylvania Academy of Science



by Greg Czarnecki • Executive Director, Wild Resource Conservation Program

After 88 years the PA Academy of Science peer-reviewed journal, which has only been available to Academy members, is now available online and free of charge. Additionally, there are no longer any page charges for researchers to publish their work in the journal. PAEP members interested in learning more about the Academy and the journal as a possible venue to publish their research should check out the following article.

What a time it was. World War I was over, the economy was booming, and modern technology combined with an uninhibited arts and cultural scene to give rise to the roaring 20's. But the 1920s weren't just about flappers and speak-easies; it was a great time for science as well. Edwin Hubble discovered the existence of other galaxies, and Albert Einstein won the 1921 Nobel Prize for physics. John Baird invented television; Clarence Birdseye learned how to freeze food that retained its taste and nutrients; and insulin, vitamin E, Penicillin, and King Tut's tomb were all discovered.

It was against this cultural and scientific backdrop that a group of forward looking scientists, including the discoverer of the X chromosome, C.E. McClung, founded the Pennsylvania Academy of Science (PAS) in 1924. Their goal was to encourage scientific research, promote interest in the teaching of science, and stimulate the exchange of ideas among those engaged in scientific work, especially in Pennsylvania. The organization was officially chartered by Governor Gifford Pinchot, the first director of the U.S. Forest Service.

Today the Academy, which is a member of the National Academies of Science, has nearly 300 members, most of them from colleges and universities. They span the scientific spectrum, from microbiology and zoology to psychology and organic chemistry. But the Academy isn't just for university researchers. It's open to anyone engaged or interested in scientific work, whether they work in industry, journalism, or teach middle school.

PAS allows scientists to share their work and exchange ideas with the broader scientific community, not just those within their own discipline. "The Pennsylvania Academy of Science provides a forum for the citizens of Pennsylvania and the surrounding region. By becoming a member of the Academy you can present and publish scholarly scientific research, be involved in symposia on current science topics, and meet other scientists in the state," says Robert Coxe, president of the Academy and Director of the Delaware Natural Heritage Program.

Another benefit of being a member of PAS is the opportunity to publish in the Journal of the Pennsylvania Academy of Science. The journal, which has been published since 1924, was historically only available to members of the Academy and select libraries. But that's

all changed. The journal is now available online and free of charge.

"PAS has abandoned the costly tradition of a print journal and plunged into the modern (and more environmentally sound) waters of digital publication," says Mike Campbell, Professor of Biology at Mercyhurst College and past President of PAS. "We hope this will increase the journal's accessibility and use as a publication outlet for Pennsylvania scientists in government, industry, and academia, and that the citizens of Pennsylvania will benefit by gaining open access to reports of Pennsylvania-relevant scientific work."

The Academy was formed during an age of rapidly expanding technology and scientific knowledge for the purpose of promoting scientific inquiry and disseminating scientific knowledge. Now, nearly nine decades later, human knowledge and technology are expanding at a rate that wasn't even dreamed of in the 1920s, so those goals and the Academy's role are more relevant than ever. ■

If you're interested in learning more about PAS, publishing in the journal, or becoming a member, visit their website at <http://pennsci.org/> or contact PAS Board member Greg Czarnecki at gczarnecki@pa.gov.

Sustainable Product Design and Consumerism Dynamics as Drivers of Sustainability

The decisions made in the design phase are key in determining the fate thereafter of a product, along a product's life, from material sourcing, manufacture, distribution, and use, to disposal. There exists the opportunity and necessity to mitigate the environmental impact of a product in the nascent stages. In moving towards sustainability, design should produce products which exert an affordable cost to our economy, minimize the impact on the environment, and satisfy the usability and well-being needs of individuals.

In a segment entitled "Designing our way to the future" in the book *Understanding Design* (2006), author and designer Kees Dorst states how an increasing number of companies, governments and institutions are utilizing the design field to help solve the environmental issues we face; designers have a natural understanding for complex problems, involving the interaction of many stakeholders. This 'design thinking' entails applying creativity in creating answers to problems that could not be reached using other, traditional problem solving methods. Henry Dreyfuss, as quoted in Harvard Business Review in November, 1950 summarizes the relationship:

"It must be borne in mind that the object being worked on is going to be...looked at...operated, or in some way used by people individually or en masse. If the point of contact between the product and people becomes a point of friction, then the designer has failed. If, on the other hand, people are made safer, more comfortable, more desirous of purchase, more efficient- or just plain happier- by contact with the product, then the designer has succeeded."¹

Yet, the role of design is "understudied" in consumer behavior². Our global consumer culture is consumptive in nature. Consumption rings of environmental degradation and excess, and opposes the desired move towards a service-, rather than goods-based economy, products are essential for life and development. Products can provide a strong basis for development that is sustainable through the medium of consumption. "It's interesting that economics focuses on the things that are consumed rather than on the people that consume them."³ The consumer's product choices hold great influence over what products are produced, delivered by firms who profit by meeting the needs of the consumer. Production and consumption continue to be tied together, neither one determining the other but being in constant and mutual definition⁴. It is this combination of consumer behavior and the importance of product design which will be analyzed and portrayed to highlight the dynamism of the two entities; an alteration of consumer behavior towards lessening and need-base consumption, along with minimally environmentally degrading and socially gratifying products will provide a crucial component of sustainability; a solution must meet an essential need to be deemed responsible⁵. More conscious thought and responsibility must be applied to the products we create and the way in which we consume them in order to achieve sustainability. Integration from firms and government will provide a supporting role, however, ultimately, the consumer and ability of the product to communicate this desire to live sustainably will promote other influences and players towards sustainability.

¹ Obendorf, Hartmut. (2009). *Minimalism: Designing Simplicity*. Dordrecht: Springer.

² Deng, Xiaoyan. "Consumer response to visual aspects of packaging and product design." PhD diss., 2009.

³ Ehrenfeld, John R. (2008). *Sustainability by Design*. United States: Binghamton Valley Composition.

⁴ Gabriel, Yiannis & Lang, Tim. (2006). *The Unmanageable Consumer*. London: SAGE Publications Ltd.

⁵ Borbye, Lisbeth. "Sustainable Innovation", Morgan & Claypool, (2011), Accessed November 27, 2012, DOI 10.2200/S00359ED1V01Y201105TME003.

Early stages of improved products

“Green design” has become one of the most discussed topics in the media, politics, education and among interest groups. *Green design* can be defined as: reducing the use of non-renewable sources, enhancing well-being of uses and everyone involved along the supply chain, and minimizing the environmental impact of the product during and after its useful life⁶. *Sustainable design* encompasses additional efforts - in the realm of economic, environmental and human impact along all stages of the product’s life. If green design is in its initial experimental stages, with technologies being perfected⁷, the more involved sustainable products are less well known and produced. In other words, with relatively basic knowledge of other factors which would make a *sustainable* versus *green* product, and small supply, the acquisition of green products might seem a satisfactory win to the consumer. The consumer is aware of and ready to receive green products; strong demand for products with environment benefit persisted even during periods of recent slowed economic growth⁸. Thus, assuming a safely predictable continuation and plausible strengthening of this mindset in a more stable economy, the shift towards consumption, and corresponding innovation of sustainable products, should be a natural progression.

However, many maintain that the ‘critical mass’ of citizens and businesses are waiting to pursue the involved actions towards sustainability when supported by a regulated economy. It would ease and foster the transition, rather than have individuals “go against the grain”⁹. In a 2006 report of Sustainable Consumption Roundtable, composed by the National Consumer Council and Sustainable Development Commission entitled “I will if you will”, it is stated that an impasse exists in acting in a way to promote sustainability due to a lack of direction¹⁰. The United States Congress Office of Technology and Assessment¹¹ believes that regulations and economic instruments that target specific problems, while allowing designers flexibility to innovate, are the way towards sustainability. Rather than allowing for a natural transition which will *sustain* a move in this direction, regulations could impede progression towards consumption of sustainable products; through this shift in responsibility, the consumer would lose the conscious thought when analyzing a product, critical for a change to sustainable consumer behavior, being reliant on regulations to dictate their behavior. Designating the consumer as decision maker for what will be produced, will include the necessary consumer-desired qualities in the product which regulations would be unable to provide. Rather, allowing consumer demand to decide sustainable choices in a free market will develop a different consumer mindset and has more chance for success than in a regulated market environment.

Traditional products’ benefits promising “whiter than white” or “fresher than fresh”¹² are relinquishing to not only environmental and personal benefits of sustainable products, but also that of the threat as a result from not protecting the environment. Depending on the belief of the individual as a self-interested entity, the latter benefit/threat combination should appeal to the majority of individuals. A ‘new green order’ strives to take advantage of the individual’s fears of environmental issues, translated into supporting a set of solutions: to continue market-led corporate development and to have the individual feel the burden of searching for solutions

⁶ Bhamra, Tracy & Lofthouse, Vicky. Cooper, Rachel (Ed.). (2007). *Design for Sustainability: a Practical Approach*. England: Gower Publishing Limited.

⁷ Fairs, Marcus. (2009). *Green Design*. London: Carlton Books Ltd.

⁸ Guidice, Fabio; La Rosa, Guido; Risitano, Antonino. (2006). *Product Design for the Environment: A Life Cycle Approach*. United States: Taylor & Francis Group, LLC

⁹ Lannuzzi, Al. (2012). *Greener Products: the Making and Marketing of Sustainable Brands*. Boca Raton, FL: Taylor and Francis Group.

¹⁰ *ibid.*

¹¹ U.S. Congress, Office of Technology Assessment (OTA). (1992). *Green Products by Design: Choices for a Cleaner Environment*. Washington DC: U.S. Government Printing Office.

¹² Ottman, Jacquelyn A. (1993). *Green Marketing*. Chicago: NTC Business Books.

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to environmental problems, rather than relying on governmental regulations or policies to affect changes through production and distribution¹³.

Supply and demand

Price is a primary hindrance affecting the consumption of sustainable products. As is the case with novel products with limited supply, price for sustainable products is usually higher than other products on the market. This causes an inequality in accessibility, the consumer with the higher disposable income able to purchase these products, while the consumer who is not able, purchases the less expensive option, usually being the non-sustainable product. Products are purchased to provide a function, being especially the case for consumers who can only afford to purchase based on grounds of necessity. However, in the case of less expensive, often poorer quality products, function is not supplied for long. Based on the aforementioned need, the same product is likely purchased any number of additional times to meet the same end result. The amount of expenditure spent for the one needed function could equate to more than for a sustainable alternative. This may or may not be recognized by the consumer; future-oriented thinking is important for both the consumer and the environment. Both pay a higher cost in the final analysis.

“Poor people cannot afford cheap things”¹⁴. The current consumption levels make this maxim true for the environment also. Inefficiency as a result of little thought when producing a product and how it will create impact through its life, leads to waste and environmental degradation. From the multiple consumption of the single product comes more use of (usually) non-renewable resources, more pollution from distribution, maintenance and use, and more waste. Not only are sustainable products a more beneficial option, they are likely more beneficial twice, or however many times a non-sustainable product would be purchased in its stead, over. The generally higher price of sustainable products stimulates more thought on what and how much to purchase, better maintenance of the product and therefore less consumption of the same product.

Encompassed upfront is the price to pay to avoid environmental or subsequent economic and social damage. Yet consumers will pay the higher price based on perceived value of primary and secondary benefits¹⁵, secondary benefits being those from internalizing the cost of impact into the product. It is harder to imagine the benefit of avoiding the externalized cost and also hard to quantify in terms of cost when environmental services are seen as a public good, and therefore free¹⁶. Willingness to pay (WTP) will increase because perceived value will increase as environmental degradation becomes more apparent and as more people experience it directly, becoming a salient issue. Sustainable products help decrease the health impacts resulting from less pollution, and the resultant health bill post factum¹⁷. However, secondary benefits could be seen as benefits materializing in the distant future, rather than for the consumer in the present; or through the actions of purchasing this sustainable product, well-being is safeguarded for future generations. The majority of sustainable products would simultaneously benefit the current consumer and future individuals, because of the corresponding personal health and well-being, including aesthetic value, function, et al. while also having environmental protection characteristics, aiding in the conservation of the environment and economy for the future as well as now.

¹³ Littler, Jo. (2009). *Radical Consumption: Shopping for Change in Contemporary Culture*. England: Open University Press.

¹⁴ Madsen, Sally & Cotter, Colleen. *Quality Design for the Poor*. Retrieved May 6, 2013, from patterns.ideo.com/images/uploads/.../patterns_vol3_qual_design_final.pdf.

¹⁵ Fuller, Donald A. (1999). *Sustainable Marketing: Managerial-Ecological Issues*. California: SAGE Publications, Inc.

¹⁶ Uusitalo, Liisa. (1986). *Environmental Impacts of Consumption Patterns*. New York: St. Martin's Press, Inc.

¹⁷ Littler, Jo. (2009). *Radical Consumption: Shopping for Change in Contemporary Culture*. England: Open University Press.

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It can be concluded that usually the consumer will need convincing that changing consumption behavior that might mean a short-term inconvenience, will be in their self-interest long term¹⁸. The role of marketing to persuade and also to educate will play a big role in channeling this behavior. Whereas traditional marketing would focus on short-term costs, sustainable marketing would focus on long-term life-cycle costs associated with the product.

Perceived value = perceived primary and secondary benefits/price¹⁹

A lack of managing their own pollution allows companies to produce cheap products, while letting other entities bear the fiscal burden for these externalized responsibilities. "The environment is effectively providing a subsidy".²⁰ Factors that contribute to the higher price are not tangible items that can be seen by the consumer when purchasing a product. These therefore might have a lower value to the consumer than the tangible product²¹. These are then presented in the form of a health bill, taxes, or a cost to well-being, for example through imposing a negative effect on an individual's recreation area. Instead of reaction and remediation, sustainable products create a system of proactivity and prevention. The order or timing of either paying now or later is not interchangeable; there are discrepancies in the different mechanisms needed in both situations- in effort, price, and in some cases, damage is irreversible, with less expense and more benefits derived from a preventative approach usually being the case.

The Environmental Kuznet Curve demonstrates the correlation between the trend that income level per-capita increases with time and as a result decreases environmental degradation. Increased income, therefore increased education²², means a higher awareness, desire and means to take action towards mitigating environmental issues²³. Sustainable products will be accessible to a greater number of individuals and will support this increasingly conscious lifestyle. Those that are able to purchase sustainable products will increase to the point of eventually constituting the large number in the Law of Large Numbers; sustainable consumption will then be the dominant behavior.

A supply to meet demand will decrease the price, balancing out the inequality of accessibility, adding to the number of individuals who can then be able to purchase these products. In 2010 a survey of 1,000 participants in the United States, 64% said they were "searching" for green, sustainable, energy efficient et al. products, a 4% increase from the previous year. A 2010 global Green Brands Survey found that consumers worldwide *plan* to spend the same amount or more on green products in 2011²⁴. "Searching" and "planning" could equate to WTP, which usually is assigned a higher value than the price the consumer would actually pay, minimizing consumption. However, WTP adjusts according to income²⁵ - in accordance with the trend of increasing GDP and the decreasing price of sustainable products, WTP should increase.

¹⁸ Fuller, Donald A. (1999). *Sustainable Marketing: Managerial-Ecological Issues*. California: SAGE Publications, Inc.

¹⁹ *ibid.*

²⁰ *ibid.*

²¹ Bhamra, Tracy & Lofthouse, Vicky. Cooper, Rachel (Ed.). (2007). *Design for Sustainability: a Practical Approach*. England: Gower Publishing Limited.

²² Cheeseman Day, Jennifer & Newburger, Eric C. (2002). *The Big Payoff: Educational Attainment and Synthetic Estimates of Work-Life Earnings*. Retrieved December 11, 2012, from <http://www.census.gov/prod/2002pubs/p23-210.pdf>.

²³ Field, Barry C. & Field, Martha K. (2006). *Environmental Economics: An Introduction*. United States: McGraw-Hill/Irwin.

²⁴ Lannuzzi, Al. (2012). *Greener Products: the Making and Marketing of Sustainable Brands*. Boca Raton, FL: Taylor and Francis Group.

²⁵ Field, Barry C. & Field, Martha K. (2006). *Environmental Economics: An Introduction*. United States: McGraw-Hill/Irwin.

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Concepts at the core

The following section gives examples of products as well as descriptions of ideas for products in ways that can appeal to the consumer's needs combined with ideas for incorporating sustainability. Several opinions from individuals are offered in lieu of an additional case study. This is to emphasize the importance of the thought behind the design of the products, for this determines all other aspects of the product and its associations thereafter. I believe this is a core aspect to analyze, instead of to describe how to manage a supply chain to a more sustainable end.

"Directional design"²⁶ lays out the product's designed function in a way that will strongly suggest compliance with maintaining the sustainable purpose of the product. The use will be apparent in the design. The following example is a product that is not entirely sustainable; a lifecycle analysis was not provided. It is a prototype product which contains ideas for sustainable products. "Towel with Further Options" by Takuya Niimi and Yuki Niimi, produced in 2007 suggests prolonged use of the towel by providing cutting guidelines that will create smaller versions of the towel which can be used after the end of its usable life has been reached; i.e. a bath mat, then cleaning cloth. This promotes reuse, leading to fewer necessary resources to produce each item, and less waste. It also pertains to the idea of sustainable products providing more than one function (see Appendix A).

"Why are low-energy bulbs so ugly?" asked Nicolas Roope who felt that the sustainable pull of a product was not sufficient cause to create desire from the consumer. He created the 'Plumen Low-Energy Bulbs' in 2007 (see Appendix B). The 'Plumen' references a bird's decorative plumage, not contributing to the bird's practical purpose of flying, but providing an aesthetic value.

Within the product, namely industrial design, industry, appearance is largely emphasized²⁷. This is so prized, that it often takes precedence over other characteristics like functionality. In terms of green products, this can also be the case, as seen in Roope's opinion- aesthetic value should be highly valued. Sustainable products can have creative aesthetic appearance, yet it cannot compromise the characteristics which make it sustainable.

Conclusion

There exists a great amount of pressure on a product, of how, according to the decisions made during conceptualization it will create negative or positive impact during its life. Instead of focusing on end product, what comes out, there should be focus on what goes in²⁸. A variety of factors which are all encompassed in a sustainable product will intentionally support the economy, environment and the consumer. I argued that there will be a plausibly easy transition into a sustainable economy through the consumer and product dynamic. Yet many other factors are involved, and unforeseen influences in the future can either hinder or foster this relationship. Ultimately, the consumer will assess information given by organizations, firms and others and make a decision based on their individual needs, which will determine what a firm will produce in order to create profit. Humans are believed to act in a rational and self-interested manner²⁹, so that, although there is professed desire to contribute to the better good and act towards sustainability, inherently individuals will act to fulfill their own interest, as is illustrated by the high price and importance on human health, as inhibitors towards consuming sustainable products. Where environmental and human well-being coincide is the nexus we must strive for in a product, and in our society.

²⁶ Stelling, Doug & Mason, John. (2000). *Environmental Green Design*. Retrieved May 6, 2013, from www.aia.org/practicing/akr/AIAB089235.

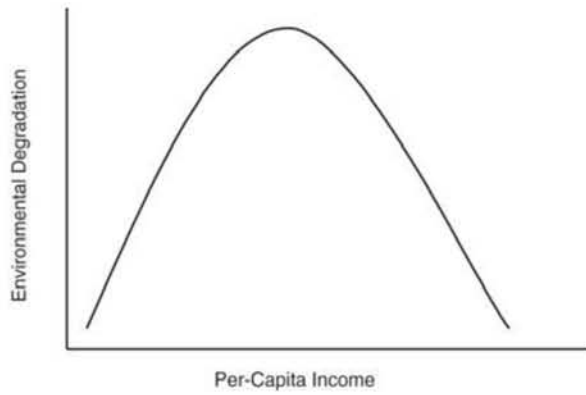
²⁷ Walker, Stuart. (2006). *Sustainable by Design*. London: Earthscan.

²⁸ Wann, David. (1996). *Deep Design: Pathways to a Livable Future*. Washington DC: Island Press.

²⁹ Field, Barry C. & Field, Martha K. (2006). *Environmental Economics: An Introduction*. United States: McGraw-Hill/Irwin.

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Appendix A



The Environmental Kuznet Curve

Source: www.aei.org

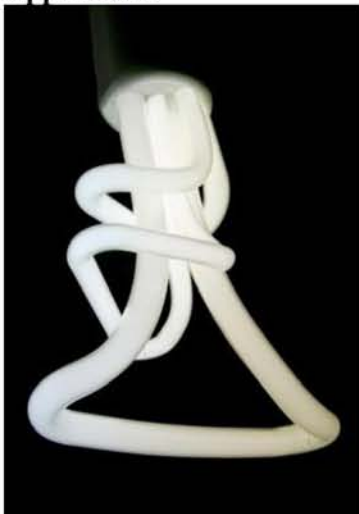
Appendix B



“Towel with Further Options”

Source: <http://www.dezeen.com/2008/02/27/towel-with-further-options-by-niimi/>

Appendix C



Rooke's “Plumen” bulb

Source: http://www.moma.org/collection/object.php?object_id=110465