Paper Sourcing at UBC

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MBA 500

December 03, 2003

Project #2
December 3, 2003

Recycling Sense®

Paper Sourcing at UBC

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Printed on 30% recycled paper

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Executive Summary

Business Concept:

The University of British Columbia (UBC) attempts to distinguish itself as a leading edge postsecondary institution by promoting its environmental and sustainable development initiatives. Currently, only 25% of UBC's total paper purchases are recycled paper, the other 75% is virgin paper. The business concept is to change the current mix of paper purchased at UBC by influencing individual purchasing units buying behaviour to increase the percentage of 30% post consumer recycled paper (PCRP) they purchase. To coordinate this effort the business plan leverages resources from both UBC's Supply Management Department and Sustainability Office.

Opportunity and Strategy:

The opportunity is to increase the market share of recycled paper purchased on campus. Market research reveals that price, lack of information, and quality misconceptions are major barriers to changing this mix. Industry trends and analysis indicate an increased willingness to use 30% PCRP. Alternative strategies that are analyzed include mandating the use of recycled paper by UBC, subsidizing the cost differential between virgin and 30% PCRP and implementing promotional initiatives to increase awareness in each department of the ecological benefits of purchasing 30% PCRP. The market promotion strategy is recommended and detailed within.

Target Market and Projections:

Customers have been segmented into four major categories on the basis of consumption of paper and its end user. These segments are small faculties, large faculties, libraries and

the Alma-Mater Society. Projections anticipate an increase in the market share of 30% PCRP at an average rate of 13-14% annually, reaching 70% by 2006.

Competitive Advantage:

30% PCRP's major competitive advantage over its rival, virgin paper, is its ecological benefits. These benefits include a reduction of wood required for pulp, a decline in air and water pollutants, energy savings and a reduction in solid wastes.

Business Economics:

The contract price of 30% PCRP is more expensive than the virgin paper. Therefore, the "contribution margin" of switching from virgin paper to recycled paper is always negative. The financial implications of this plan have been analyzed using two methods: Direct Cost Analysis and Cost Benefit Analysis (CBA). Each analysis calculates the incremental costs incurred by UBC. Under the CBA, the benefits of purchasing more 30% PCRP paper outweighs the costs, even under several worst-case scenarios. The breakeven point is achieved at 27% consumption of 30% PCRP and 73% consumption of virgin paper, 2% more PCRP than presently purchased.

Management Team:

The Sustainability Office is responsible for the implementation of this business plan. Ruth Abramson, Communication Manager, has worked in the Sustainability Office for the last 3 years and has a Masters in Environmental studies from York University. She is responsible for hiring, training and managing the sales force (TrekStep1 students) that will carry out the promotional campaigns.

Industry

The industry for this project is North American post secondary educational institutions. These institutions regularly consume large volumes of paper in their daily activities (i.e. photocopies, course packs & internal documents). Paper procurement is usually assigned to a purchasing department, and a variety of strategies are used when sourcing paper. Some universities negotiate a centralized, university wide contract, leveraging aggregate volume to get better prices. This contracted product and price is then either mandated as the only source for individual purchasing units, or is provided as an alternative, leaving purchasing units with the autonomy to decide whom they will purchase from. Institutions with decentralized purchasing or who lack an overall policy tend to make individual purchases from a wide variety of vendors. In both situations, unless there is a mandate specifying purchasing requirements, decisions regarding the mix of PCRP purchased, as well as, the specific type of PCRP (i.e. 10%PC, 20% PC or 30% PC) are left to the individual purchasing units.

As institutions of higher learning, Universities are entrusted with shaping societal policies and actions in a sustainable and equitable manner. By creating a demand for recycled products, universities help to 'close the loop' of recycling. If Universities do not purchase recycled paper they are not 'truly' recycling, despite their participation in blue bin programs, because the circle (1. collect used paper 2.convert used paper into new PCRP 3. purchase PCRP) is incomplete. In addition, a new certification, ISO 14001, for environmentally sound organizations has recently been developed. Giving preference to organizations that have attained this certification will highlight environmental sustainability issues for University suppliers. A survey of North American universities

and their recycled paper usage, specifications, and buying strategies are included in Appendix 1.

Company – UBC Purchasing and Sustainability Offices

Established in 1915, UBC is the oldest university in British Columbia and the third largest in Canada. In 1997, UBC became the country's first university to implement a sustainable development policy and in 1998, opened Canada's first Campus Sustainability Office. (UBC Campus Sustainability Office Brochure) Its stated vision is to "make UBC the leading Canadian university in demonstrating the means to a sustainable community through the fair, wise and efficient use of economic, social and ecological resources within the bounds of a finite planet."(UBC Sustainability Website) In partnership with the Supply Management Office, UBC has signed declarations on sustainable purchasing and started initiatives concerning education, waste reduction, composting, land use planning, green buildings, and energy and water use plans.

Purchasing is guided by Policy #122, initiated January 1993 and revised May 2003. Principles outlined for the acquisition of goods for the University under this policy include "*Probity* - the highest level of personal and organizational integrity for each transaction; *Performance Measurement, Best Value, Open and Fair Access,* and *Community and Environmental Leadership*: decision making factors may be weighted to acknowledge local business development and the University's role in environmental leadership". (UBC University Council Website) Primary responsibility falls to the Vice-President, Administration and Finance, authorized by the Board of Governors for correct application of the Policy. The Department of Supply Management with its officers are

responsible to the Vice President Administration and Finance for the implementation of this Policy, including understanding, application, and measurement.

Concept

As the major educational institution in Western Canada, UBC's paper usage is large, approximately 103 million sheets in 2002. In 2002, only 25% of all paper purchased on campus was 30% PCRP. As a result, there is a significant opportunity to change the current purchasing mix by influencing individual purchasing units buying behaviour to increase the percentage of 30% PCRP purchased on UBC's campus.

Product

Eureka!30 copier and printer paper is the recycled product that UBC has agreed to purchase from its contracted supplier, Unisource. Eureka!30 is manufactured by Georgia-Pacific and contains 30% post-consumer content, opacity is 84% and has a 20 lb. basis weight or 75g/m2. Recycled paper is made from used paper that is first dissolved into fibers and then mixed with new paper fibers. Post-consumer content refers to an end product that has completed its life cycle as a consumer item and would otherwise have been disposed of as a solid waste. In 1998, the Environmental Protection Agency (EPA) issued a minimum 30% recycled content guideline for federal paper purchases in the United States. (U.S. EPA, 1998) Since then, 30% PCRP has been recognized as the industry standard for recycled paper.

Recycled paper quality can be judged by specific paper properties, such as, the moisture content, weight, stiffness, tearing strength, opacity, smoothness, curl or performance. Eureka!30 meets standard content moisture (4.5$\pm$.5%) and weight (20 lbs. basis weight)

specifications and performs well in terms of paper-jamming and image quality (Appendix 2).

Growth Strategy

Strategies to increase the percentage of 30% PCRP purchased on campus include:

1. Mandating that all paper purchased be 30% PCRP or all purchases be made from a single contracted supplier who will only supply 30% PCRP.
2. Subsidizing the cost difference between virgin paper and 30% PCRP by listing the two products at the same price and having the Supply Management Office reimburse Unisource for the cost differential on a quarterly basis. This would remove any price selection bias.
3. Equating the cost difference by increasing the price of virgin paper to equal the cost of 30% PCRP. This also would remove any price selection bias but contains the potential risk of purchasing units sourcing virgin paper outside the Unisource contract at market prices.
4. Implementing promotional campaigns and information sessions to influence buying behaviour, despite the cost differential.

Additional strategies employed by other universities in our industry are outlined in Appendix 1.

Market Research and Analysis

Customers:

Our customers are all the individual paper purchasing units at UBC. We have segmented these units into four large groups, based upon the amount of paper purchased by each unit, as well as, who their end user is. The segmentation of the four groups (small

faculties, large faculties, libraries and the Alma Mater Society) is graphically presented in Appendix 4. Interviews with a selection of departments in each category (Commerce, Education, Forestry, Main Library and the Alma Mater Society) were conducted to analyze the different buyers behaviours. The results are outlined in Appendix 3.

Main Library: Purchasing for all 29 libraries on UBC's campus is centralized at the main library. The main library has a department named UBC Library Copy Service, which takes all the requests from individual libraries and places one cumulative order with Unisource, who then delivers the paper directly to each individual library.

Commerce Department: This faculty has a decentralized purchasing process and, consequently, can be further divided into 17 smaller departments, such as, the Masters Program Office, Undergraduate Commerce Office, Duplication Service center, etc. Purchase orders are sent directly to Unisource by each sub-department according to their own demand requirements. The largest consumer is the Duplication Service Center, which handles all types of printing and copy requirements (course packs, cases, presentations etc.) associated with the Commerce Department.

Faculty of Education: This department also has many sub-divisions, however, purchasing is centralized in the Printing Department of the Faculty of Education. This department is responsible for the distribution of paper to the sub-divisions as per each division paper requirement. The majority of consumption is by the Printing department itself.

Market Size/Share and Trends

Paper consumption at UBC was 103 million sheets in 2002, including both virgin and 30% PCRP. Of these purchases, virgin paper accounted for 75% and recycled paper 25%. In 1998 UBC's paper consumption was 104 million sheets. Virgin paper accounted for 82% and recycled paper 18%. Since then the use of Virgin paper has declined by approximately 1.5%-2% a year. At the same time the total consumption of paper has also reduced. The price of both Virgin paper and Recycled paper has dropped over the last several years. With the implementation of our promotional campaign we anticipate 70% of all paper purchases will be 30%PCRP by the end of 2006. Specifically, the market share is anticipated to be from 2004 to 2006, 45%, 60% and 70% respectively. The growth rate assumptions used in Appendix 5 are based on an 11% increase in 30% PCRP purchased in September 2003 as the result of a direct market campaign that occurred over the summer of 2003.

Competition and Competitive Edges

The major competitor for 30% PCRP on campus is virgin paper. The single most significant competitive advantage of virgin paper is that it is cheaper. Under the current contract with Unisource 1000 sheets of 8.5x11 virgin paper costs $6.21 vs. $6.70 for 30% PCRP. According to our market research, purchasing units also tend to prefer virgin paper because they believe it is of a higher quality. The most significant driver of this was the perception that there is less paper jams in the copiers when using virgin paper.

According to our research, 30% PCRP performs just as well as virgin paper (U.S. Conference of Mayors, March 1999) and the reason behind the majority of the jams at

UBC can be more accurately attributed to the speed, condition and age of the copiers (Environmental Defense Fund, 1995). The most significant competitive advantage of 30% PCRP paper is the ecological benefits that provides. These benefits include a reduction of wood required for pulp, a decline in air and water pollutants, energy savings and a reduction in solid wastes.

The Economics of the Business / Financial Plan

The objective of this business plan is to increase the mix of 30% PCRP vs. virgin paper purchased on campus. As a result, there is no traditional "revenue stream". To analyze the financial implications of this plan we utilized two different methods: 1. Direct Cost approach and 2. Cost Benefit Analysis approach. Each analysis calculates the incremental costs incurred by UBC (i.e. the additional price of recycled paper, additional marketing expenditures). There are also opportunity costs to implementing this program (i.e. resources currently being utilized at the sustainability office that will be allocated to this program). The sustainability office is a cost center and we have estimated the percentage of these expenses that will be allocated to this program (Appendix 6, table #11).

Direct Cost

In April of 2003 UBC signed a contract with UniSource that set the maximum price for paper for the next year (Appendix 8). Under this contract, the price of 30% PCRP is more expensive than the virgin paper. Therefore, the "contribution margin" of switching from virgin paper to recycled paper is always negative. All additional costs are fixed and

are allocated to the marketing program and the incentive plan. As a result, the different market entry strategies all generate a negative NPV. (Appendix 6 – tables #1, 2 & 3)

Cost Benefit Analysis (CBA)

To effectively analyze this business plan we need to consider all of the costs and benefits to society as a whole. For this reason, we have utilized a CBA or social cost-benefit analysis (Cost-Benefit Analysis, 2001). 30% PCRP has several ecological benefits when compared to Virgin Paper.

Ecological Benefits of 30% Post Consumer Recycled paper vs. Virgin Paper (Per Ton of Paper)[1]	
Reduction in Energy Usage (000btu/ton)	5,042
Reduction of Atmospheric Emission (lbs):	
Net Greenhouse Gases (CO2 Equivalents)	**629**
Nitrogen Oxides	**1.3**
Sulfur Oxides	**0.3**
Reduction of Solid Waste (lbs)	324
Reduction in Waterborne Wastes (lbs)	21
Reduction in Wood Used (lbs. of trees)	2,080

Accurately monetizing these benefits is very difficult. As a result, we focused on atmospheric emissions. The NPV under the CBA method was determined by netting the monetized benefits of the reduction in atmospheric emission against the project costs for the three years of our project. We assumed that there were no social costs to switch from virgin to 30% PCRP as the quality is identical and the order/delivery process will remain unchanged. A terminal value was calculated using a negative 5% growth rate because the mix of paper would likely change at this rate even if we did not intervene. The NPV was

[1] Paper Task Force, Dec. 1995

calculated by discounting these net benefits at the Canada government's social discount rate of 8%.

Under the CBA analysis the mandate strategy had the largest NPV at $2,878,689 because the mix of PCRP purchased would instantly reach 100% without incurring any marketing expenses. After discussions with David Rankin it was decided that this option is not feasible, at this time, due to the political backlash of mandating the faculties' buying decisions. It should be noted that this strategy has been successfully implemented at a number of US institutions.

Subsidizing the price of PCRP returned the second highest NPV at $2,776,124. Again it is assumed the mix of PCRP purchased would reach instantly 100%. However, under this strategy the cost of faculties already using 30% PCRP would also have to be subsidized in addition to the new converts. The financial cost to subsidize the price difference, approximately $47,000 a year, would be fully allocated to the purchasing office, instead of spread out to all the purchasing units. For this reason we do not recommend this alternative, in addition, it is not a sustainable solution. It is important to note that $47,000 is an insignificant value when taking into account that the total budget of UBC is greater than $1 billion dollars.

The marketing strategy returns the lowest, but still impressive, NPV at $1,998,975. We recommend this strategy because it changes purchasers buying behavior in a sustainable manner and diversifies the financial costs across all purchasing units (Appendix 6 – tables #4, 5 & 6).

Using the same analysis the break-even point for this project is reached when the purchasing mix is 27% PC recycled paper and 73% virgin paper, representing a 2% increase in PCRP use from present. The sensitivity analysis also supports the project because the social benefits of this project far outweigh the costs under several worst-case scenarios. (Appendix 6– Table #7)

Marketing Plan

In order to achieve the projected purchasing mix for 2006 (70% PCRP - 30% virgin) and maintain the sustainability of this target going forward, the following marketing strategy will be implemented, following the efforts the Sustainability Office has already done.

Overall Marketing Strategy

In order to have a sustainable and high percentage of PCRP purchased by all the units of UBC our strategy will be centered on delivering high quality 30% PCRP, as well as communicating the ecological benefits of its usage. In order to *push* the purchasing of PCRP our strategy is to target the people that are actually responsible for purchasing the paper for their unit. We will also generate a pull demand by targeting the end consumer of the paper purchased by these units.

The long-term objective is to create a business model that can be reproduced at other universities across the country. By promoting this initiative UBC will fulfill its social responsibility while improving its reputation at the same time.

The demand for paper at the university has seasonal peaks. As a result, special promotional programs will be implemented at the beginning of each term, when a

majority of material is printed by each faculty, as well as, at the end of each term, when the number of photocopies and prints done by students increases.

Pricing

The price and supply of paper has been negotiated and contracted to Unisource Canada for the next three years. Each purchasing unit at UBC can purchase paper directly from Unisource with a 0% mark-up over this contracted price. Although the price of 30% PCRP is still higher than that of virgin paper, Unisource did agree to reduce the price of the 30% PCRP to what the price of the virgin paper was in April 2003, allowing it to compete better vs. the virgin paper. As the volume of 30% PCRP purchased increases, new negotiations can be initiated with Unisource to further reduce the price of the 30% PCRP.

Sales Tactics

By leveraging the contact database at the Sustainability Office the primary tool used to influence buying behaviour at the individual purchasing units will be direct contact via e-mail. To supplement the initial phase of this e-program a direct sales force of two individuals, selected from the Trekstep1 students that participate each year with the sustainability office, will contact each unit that purchases paper to:

- Make them aware of the ecological and social benefits of using 30% PCRP;
- Clarify the myths of 30% PCRP, and
- Teach them how to purchase from Unisource.

See appendix 7 for the support material that the sales force can use.

Every three months the direct sales force will follow up, via telephone, with the main consumers of paper, as well as, with the units that have a small overall percentage of

purchases of 30% PCRP. Data from Unisource will be analyzed to measure the effectiveness of the sales force and of the campaigns. Special codes will be assigned to each purchasing unit in order to better track the purchases from each unit.

The direct sales force will change fairly often because Trekstep 1 students are continually graduating from UBC and new students are hired to replace them. As a result, guidelines will be developed to assure the continuity of the program and sales efforts. The salary of the sales force is set by the sustainability office. We recommend that a bonus incentive be included in the compensation package to reward the students when the percentage of PCRP exceeds the targeted objectives.

Service and warranty policies

Service and warranty are both provided by Unisource. Any complaints relating to the service offered by the supplier will be collected by the sales force and reported to the Supply Management Office.

Advertising and Promotion

In order to motivate the purchase of 30% PCRP several different promotions and incentives will be implemented. These promotions will be part of an integrative communication process that centers around the "***Recycling Sense"*** campaign. The main objectives of the campaign is to, 1) position 30% PCRP as a high quality paper used by ecologically conscious people, and, 2) develop a *recycling sense* in UBC's purchasing community.

The promotional campaign utilizes direct e-mail and sales force contact. The major purchasers of paper from Unisource will be sent e-mails outlining the benefits of purchasing 30% PCRP and a guide of how and where to purchase this paper. The sales

force will give away a free packet of 30% PCRP to each purchasing unit, so they can verify that the quality is as good as virgin paper, along with a document that highlights the benefits of 30% PCRP and has the contact information of the supplier, as well as, the prices and purchasing codes of paper. (See appendix 8 for a pricing list example)

As an incentive, an awards program will be set up to influence purchasing behaviours and reinforce the *Recycling Sense* campaign. A party will be held at the end of each year for the purchasing units that meet or exceed the targeted purchasing percentage of 30% PCRP. At this party, the departments that made the greatest efforts to buy 30% PCRP during the year will be publicly recognized. The party announcement, as well as, the progress of each unit will be highlighted in a newsletter that will be e-mailed every other month. The newsletter will also include some tips on how to reduce paper usage, for example articles on how to make recycled paper at home, success stories in changing purchasing behaviour, etc. (See appendix 9 for a newsletter example.)

At the same time in order to generate a pull demand from the end user, a campaign will be launched via e-mail to all UBC students highlighting the benefits of using 30% PCRP and encouraging them to ask for 30% PCRP when photocopying, printing or receiving handouts from professors (so far students are not aware what type of paper is used at the photocopying machines or in the hand outs given by professors – see appendix 11 Survey results - end user). This effort will also include promotional material that will be placed next to the printers and copying machines encouraging the usage of 30% PCRP and emphasizing UBC's sustainability mission statement. This material will also display a small sample of the different types of paper (virgin and 30% PCRP) to help reduced the

misconception of poor quality. (See appendix 10 for an example of the promotional material.)

If a high percentage of 30% PCRP is achieved, UBC can leverage this fact by including it on promotional brochures, printed as well on PCRP, generating additional PR for UBC. The overall costs of the promotional plan that will be incurred during each year are as follows:

- Cost of promotional packets of 30% PCRP: $1,340.00
- Cost of the recycling party: $6,000.00
- Cost of promotional material to target end consumers: $2,660.00

In order to measure the effectiveness of the campaign the purchasing data provided by Unisource will be used until the procurement department implements its own tracking system.

Design and Development Plans

When recycled paper was first developed, consumers complained about dust, jamming and splotches. Technical improvements have significantly improved the quality of recycled paper. Currently, 30% PCRP performs just as well as virgin paper in printing and copying (U.S. Conference of Mayors, March 1999). There are currently a number of improvements/changes that are under development for recycled paper. including pulp substitutes and high post-consumer content.

Pulp substitutes

A significant positive change in the recycled paper industry is the recent introduction of tree-free recycled papers. These papers are made from plant fiber (Hemp, Kenaf, Flax) or

agricultural waste. The use of tree-free papers has a great potential to improve paper quality, save energy and reduce the demand to cut our forests for paper in future. For example, kenaf is whiter than wood, and since it has a lower lignin content, it requires fewer chemicals and less energy to pulp and make it white. Kenaf paper is environmentally positive: pollutant free, chlorine free and acid free (Petay, 1997).

High Post-consumer Content

Another trend of the recycled paper industry is increasing post-consumer content greater than 30%. Initially limited by quality differences, greater than 30%PCRP now approach the technical specifications and quality of 30%PCRP. Although official performance data on high PCRP is limited, consumers ranked 100%PCRP paper 4/5 in terms of quality (Shenk, Bonnie PA, 1999)

Manufacturing and Operating Plan

Operating Cycle

For a decentralized purchasing unit the basic procurement cycle for paper is as follows. In response to an initial shortage of paper the purchaser responsible for ordering paper in the department calls or faxes Unisource. Each department possesses a Purchasing Card, issued by the Supply Management Office, which contains a printed code and a blanket order number. The purchaser must provide Unisource this number to ensure authenticity when placing an order. The following information is provided to Unisource: Department name, amount of paper, and optionally, type of paper (Virgin or Recycled). Unisource takes the order and sends it to its distribution center, which delivers it to the department within 24 hrs.

For centralized purchasing units, such as the Library, ordering is a follows. Each individual library contacts the Main Library division in charge of paper ordering and submits their paper requirements. The main library compiles this information and contacts Unisource providing all the required information. Unisource delivers the paper directly to the individual libraries.

The invoice operating cycle is more centralized for each department. Each department has its own finance department. Unisource sends the invoice to these financial divisions directly and this financial division cross checks the delivery with the departments or sub departments. Once the delivery is confirmed the invoice is paid by the Supply Management Office and deducted from the purchasing unit's budget. Unisource has a very efficient operational and logistics system, which handles all types of seasonal fluctuations in demand for papers.

Facilities and Improvements:

The main areas of improvement required:

Detailed Reporting from Supply Management: Currently, the Supply Management Office is unable to retrieve detailed accounts of purchases by department from their information systems. As such, we depend completely on Unisource for this information. Supply Management needs to upgrade their systems so that they can see the detail of purchases made by each purchase card. The advantage of this system is increased control and accuracy when tracking the amounts of paper usage. In addition, if Unisource were to no longer be UBC's contracted vendor we would lose all visibility of paper purchases.

New Ordering Process for Unisource: Unisource's ordering process should be altered so that they are actively engaged in the promotion of 30% PCRP. They should be encouraged to provide information on the different paper alternatives and confirm whether or not the buyer is interested in purchasing 30% PCRP. In addition, if Unisource receives an order which does not specify whether they require 30% PCRP or virgin paper, they will deliver virgin paper. This should be change so that 30% PCRP is the default paper to be shipped.

Reduction of Usage of Paper: The Sustainability Office currently has a program that is focused on reducing the overall volume of paper purchases on campus. This is obviously the more effective method of having a positive ecological impact. As a result, this program should continue to be implemented in conjunction with the *Recycling Sense* campaign.

Strategy and Plans:

Presently, UBC's strategy is to outsource paper purchases from a distributor versus sourcing directly from the manufacturer. Buying directly from a manufacturer would require a warehouse facility on campus to store an acceptable level of inventory and the development of an in-house distribution system. This is not UBC's strategic capability, as a result, it is best for UBC to source papers from vendors who have their own warehouse facilities and the distribution capabilities that can meet UBC's 24 hour turnaround requirement. When sending out a Request for Proposal (RFP) for the paper contract UBC specifics the quality of paper, types of papers to be supplied and the distribution requirements. Only those vendors who fulfill all the requirements are consider eligible to

bid for the contract. The plan is to submit a new RFP every three years and prices will be reviewed quarterly to match current market prices.

Management Team

Organization

There are two departments at UBC that are actively involved in the purchasing of recycled paper:

1. Business Operations – Supply Management
2. The Sustainability Office

Supply Management is "an enabling function and works to ensure the client gets the right stuff, right price".[2] David Rankin, Associate VP Business Operations, runs the purchasing department. He reports to the Vice President of Finance and Administration. Janet Lodge is the purchasing officer responsible for the paper contract. (Appendix 13)

Freda Pagani, Director, runs the Sustainability office and reports to Geoff Atkins, UBC Land & Building Services. Ruth Abramson is the Sustainability Department's Communications Manager and is responsible for the TrekStep 1 students.

Key Management Personnel

Ruth Abramson is the key manager taking ownership of the business plan. She has worked in the Sustainability Office for the last 3 years and has a Masters in Environmental studies from York University. Ruth is responsible for overseeing the implementation of the business plan. She will delegate the majority of the marketing plan implementation to the TrekStep 1 students. TrekStep 1 is a student training and

[2] David Rankin, Associate VP Business Operations – email Nov. 20, 2003

employment program. This program hires students to work on a variety of projects and students are employed for anywhere between 1 to 8 semesters.

Management Compensation and Ownership

The Sustainability Office is funded solely by the costs savings that result from the implementation of their sustainability programs. Increasing the mix of recycled paper purchased on campus has no tangible dollar cost savings. This raises the potential of possible agency problems because there is no financial benefit to the department to implement this program. The sustainability office currently has a large surplus due to large cost savings resulting from a campus wide retrofit program. Given their strong financial position and the department's unique intrinsic motivation to see all environmental programs succeed we do not anticipate a lack of focus by this department.

Performance Based Bonus Plan

We recommend that the sustainability office implement a bonus program to provide some additional motivation to the TrekStep 1 students. These students are responsible for implementing the "thankless" task of motivating behavioural change in individual purchasing units. The annual bonus is contingent on the mix of recycled paper reaching the targets outlined in this proposal. The suggested bonus is 10% of their standard salary. Note: This type of compensation has never been implemented in this department and is subject to regulatory approval.

Overall Schedule

Our project covers a three-year period. Initial implementation is scheduled for January 2004. The Sustainability office will first train the TrekStep1 students. After the first three months, the TrekStep1 students will call and visit the individual purchasing units. Every three months, the sustainability office will review and assess the progress by compiling and analyzing data from Unisource. We have outlined the first year month-by-month schedule in a Gantt chart (Appendix 14). The second and third year schedule will be similar to the first year.

There are some key milestones in our projected plan, such as team buildup in January 2004, first newsletter release at the end of January, personal visits and sample deliveries in February 2004, first progress review in April 2004, annual project assessment and award party in December 2004. At the end of each year, the sustainability office will decide whether to adjust the implementation plan or increase promotional activities according to actual target achievement.

Critical Risks, Problems and Assumptions

Key assumptions made in this plan include: end users perceiving a benefit to using recycled paper, and perceiving the incentives as rewarding. Organizational resistance to change due to cultural differences or hierarchical conflict would hinder implantation. Critical risks include, but are not limited to, problems with the sole contracted supplier unable to make deliveries or unable to continue as a going concern, an industry trend towards increased prices for recycled products which would place an emphasis on overall

paper reduction and University budget cutbacks that would require a reallocation of capital. Budgetary constraints could forseeably scale back the program or make the incremental costs no longer acceptable, at which time large cost items such as the incentives could be altered, leaving promotional materials in place. Additionally, if usage targets are met early, or if small organizations reach 100% usage quickly, goals for the incentive program could be revised to increase the percent of post consumer content.

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Appendix

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Appendix

1. ***Industry PCM***
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Appendix 1. Industry PCM

	Canadian Schools					US schools						UK School
	UBC	**McGill**	**York**	**U of T**	**Red River College**	**U of Minnesota**	**Evergreen College, WA**	**UNY Buffalo**	**U New Hampshire**	**Western Michigan U**	**U Vermont**	**U of Wales**
Paper	Eureka!30 Econosource	EcoLogo paper +100% PC Paper $9.14/M		Canon : Virgin $6.3/M; Recycled $6.62/M		100% Chlorine free		Enviro-graphic 100	Enviro-graphic 100			200,000 recycled; 1,440,000 virgin
% PC	30%	15 to 100%			61% 30%PC		100%	50% is 100% PC	50% is 100%PC			100% PC
Strategy	Contracted price; Decentralized	Decentralized; Check practice of major purchasers, Greening McGill program; RETHINK McGill program	Reduce, Reuse; Recycle Program	University Contract; Centralized >$5000	Annual Poster Contest	State: Immediate elimination Virgin; ; 10 yr target 100% NWF; 2% price incentive for ISO14001supplier	Review Committee, Bookstore will promote PCRP to campus	NY has state tax credit for green purchase, remaining 50% is 30%PC	Internal subsidy to match 30%PC price,target major purchasers 4 year target 30%PC to 100% PC	VP mandate 30%PC; Block virgin paper purchasing	30%PC, 100%PC Problems enforcing,>50% paper purchased outside of contract	Shift to 100% PC by contract
Office Name	Sustainability Office	Subcommittee on the Environment, Environmental Safety Office	Sustainability Office				VP Finance and Admin	UB Green	Office of Sustainability Programs			Environ. Sub-committee
Coordinator	David Rankins	Environ. Safety Officer Kathleen Ng					Review Committee					
Volume	102 million	75 million Y2003			18 million Y2000			>6.25 million	30 million			1,640,000

NWF =NonWoodFiber
Schools selected on availability and willingness to share information from sustainability list-serv
PCRP = Post Consumer Rcycled paper

Appendix 2, Specifications of 30% post-consumer content recycled paper

TABLE B. Specifications for dual-purpose paper with 30% post-consumer content provided by GPO

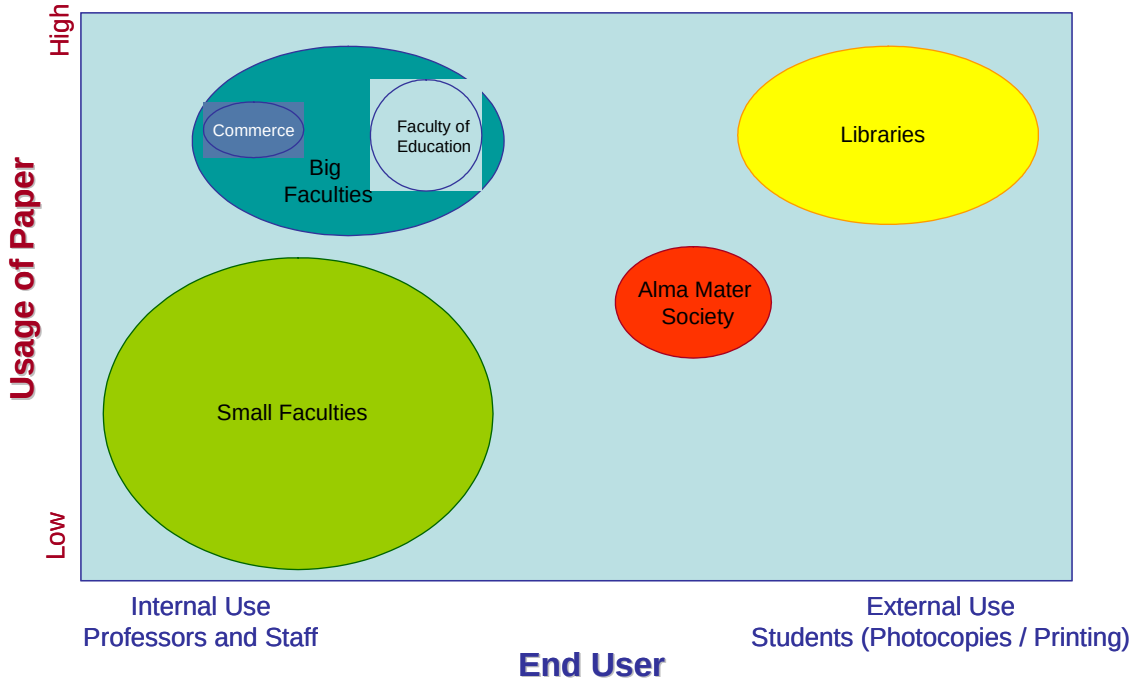
PAPER PROPERTY	TARGET SPECIFICATION
Content Moisture	4.5±.5%
Weight (Grammage)	20 lbs. or 75g/m2
Stiffness	135 mg machine direction
Tearing Strength	36 g
Opacity	86%
Smoothness	160±30 Sheffields
Curl	Paper shall lie flat before and after processing through a high speed copier or laser printer with either no tendency to curl or with a curl that can be overcome under reasonable working conditions
Performance	There shall not be more than one paper-caused jam or one document with unacceptable image quality due to the paper per 5,000 continuous copy at atmospheric conditions of 21°C

The GPO uses the term reprographic paper, which is the same as the term dual-purpose copy paper used throughout this report. These specifications are defined in Appendix A.

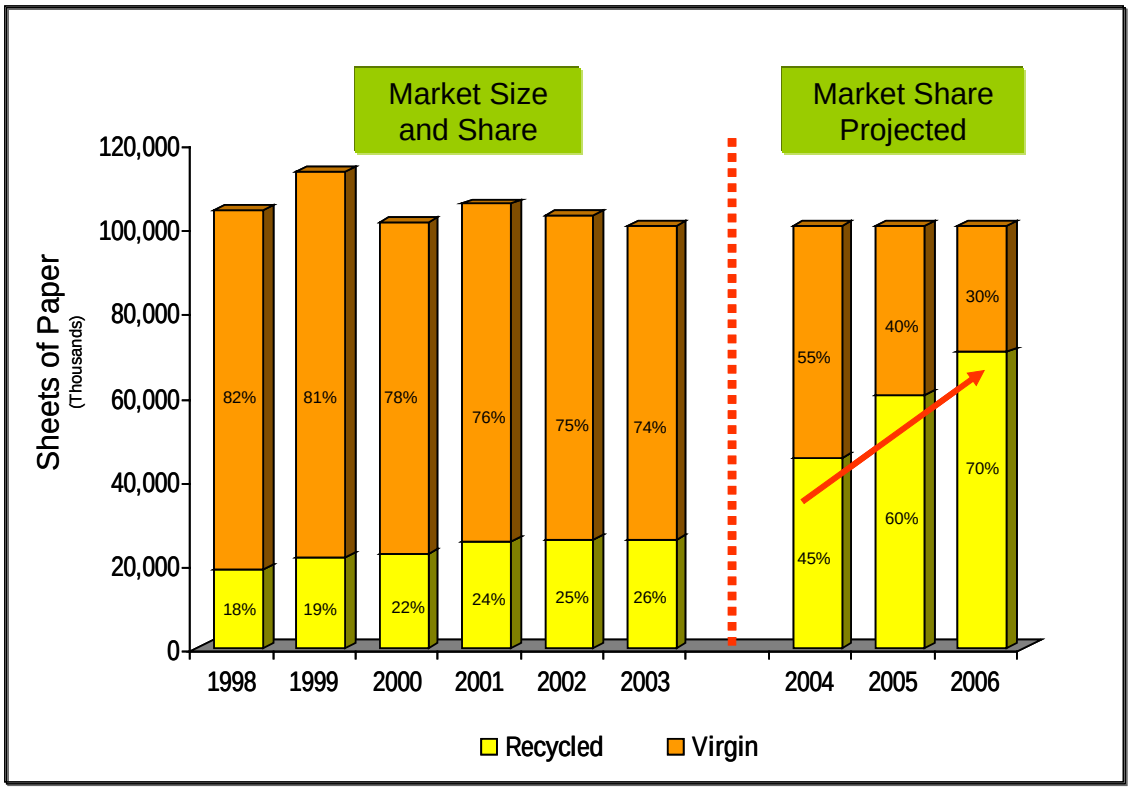
Appendix 3. Market Share and Trend analysis

	Library	Commerce Department		Faculty Of Education	AMS	Others
		Duplication Centre	Others			
No. Of Sheets	8,000,000	5,000,000	13,000,000	5,000,000	2,000,000	70,000,000
Virgin	95%	0%	82%	10%	60%	82%
Recycled Paper	5%	100%	18%	90%	40%	18%
Ordering Type	Centralized	Decentralized		Centralized	Decentralized	Decentralized
Trend -- why they use Virgin over recycled paper	Aware. Will use Recycled paper if UBC Mandates it. Will increase the cost of copying	Aware. Revenue for buying papers come from printing process.So cost of recycle is generated by end user	Mainly unaware. Just call up Unisource to place an order without specifying type of paper and some are budget concerned	Aware of implications of recycled paper on environment. Even promote the use of recycled paper. Virgin paper is used for office use to be presented	Some are aware. But most of them simply ask for paper, and some are budget concern	Mostly Unaware. They know only Econosource as a paper. Common question: Do we use recycle paper in UBC.
Willing To change to recycle paper	Yes	Yes	Yes	Yes	Yes	Yes

Appendix 4: Segmentation Graph



Appendix 5: Market Size and Market Share Projected



	Paper Size	CM to Switch from Virgin to Recycled
Variable Cost	8.5 x 11	$ (0.49)
	8.5 x 14	$ (0.63)
	11 x 17	$ (0.98)
	8.5 x 11 3HP	$ (0.49)

Table #1 Financial Cost of Marketing Strategy

		2004 55% Virgin vs. 45% PCRP	2005 40% Virgin vs. 60% PCRP	2006 30% Virgin vs. 70% PCRP
Incremental Costs of Changing Mix vs. 2003		($9,457)	($16,491)	($21,126)
Fixed Costs	Marketing Program	($10,000)	($10,000)	($10,000)
	Bonus Expense	($1,000)	($1,000)	($1,000)
Total Financial Cost To UBC		($20,457)	($27,491)	($32,126)
PV (8%)		($68,014)		
Terminal Value		($196,174)		
NPV		($264,188)		

Table #2 Financial Cost of Mandating Strategy

	2004 0% Virgin vs. 100% PCRP	2005 0% Virgin vs. 100% PCRP	2006 0% Virgin vs. 100% PCRP
Total Incremental Costs to Mandate 100% Usage of PCRP vs. 2003	($35,466)	($35,338)	($35,210)
PV (8%)	($91,086)		
Terminal Value	($215,006)		
NPV	($306,092)		

Table #3 Financial Cost of Subsidizing Strategy

	2004 0% Virgin vs. 100% PCRP	2005 0% Virgin vs. 100% PCRP	2006 0% Virgin vs. 100% PCRP
Total Incremental Costs to Subsidize 100% Usage of PCRP vs. 2003	($47,389)	($47,189)	($47,001)
PV (8%)	($121,647)		
Terminal Value	($287,010)		
NPV	($408,657)		

Table #4 CBA - Promotion Strategy

	2004 55% Virgin vs. 45% PCRP	2005 40% Virgin vs. 60% PCRP	2006 30% Virgin vs. 70% PCRP
Project Benefits			
Reduction of Atmospheric Emmission:			
Net Greenhouse Gases (CO2 Equivalents)	$120,587	$213,571	$275,561
Nitrogen Oxides	$248	$440	$568
Sulfur Oxides	$76	$134	$173
Total Benefits	**$120,911**	**$214,146**	**$276,302**
Project Costs			
Incremental Costs of Changing Mix vs. 2003	$9,457	$16,491	$21,126
Marketing Program	$10,000	$10,000	$10,000
Bonus Expense	$1,000	$1,000	$1,000
Total Costs	**$20,457**	**$27,491**	**$32,126**
Net Social Benefits	**$100,454**	**$186,655**	**$244,176**
PV (8%)	**$446,874**		
Terminal Value	**$1,552,101**		
NPV	**$1,998,975**		

Table #5 CBA - Mandate Strategy	2004 0% Virgin vs. 100% PCRP	2005 0% Virgin vs. 100% PCRP	2006 0% Virgin vs. 100% PCRP
Project Benefits			
Reduction of Atmospheric Emmission:			
Net Greenhouse Gases (CO2 Equivalents)	$355,762	$355,762	$355,762
Nitrogen Oxides	$2,659	$2,659	$2,659
Sulfur Oxides	$8,341	$8,341	$8,341
Total Benefits	**$366,762**	**$366,762**	**$366,762**
Project Costs			
Total Incremental Costs to Mandate 100% Usage of PCRP vs. 2003	$35,466	$35,338	$35,210
Total Costs	**$35,466**	**$35,338**	**$35,210**
Net Social Benefits	**$331,297**	**$331,425**	**$331,552**
PV (8%)	**$854,097**		
Terminal Value	**$2,024,592**		
NPV	**$2,878,689**		

Table #6 CBA - Subsidize Strategy	2004 0% Virgin vs. 100% PCRP	2005 0% Virgin vs. 100% PCRP	2006 0% Virgin vs. 100% PCRP
Project Benefits			
Reduction of Atmospheric Emmission:			
Net Greenhouse Gases (CO2 Equivalents)	$355,762	$355,762	$355,762
Nitrogen Oxides	$2,659	$2,659	$2,659
Sulfur Oxides	$8,341	$8,341	$8,341
Total Benefits	**$366,762**	**$366,762**	**$366,762**
Project Costs			
Total Incremental Costs to Subsidize 100% Usage of PCRP vs. 2003	$47,389	$47,189	$47,001
Total Costs	**$47,389**	**$47,189**	**$47,001**
Net Social Benefits	**$319,373**	**$319,573**	**$319,761**
PV (8%)	**$823,535**		
Terminal Value	**1,952,589**		
NPV	**$2,776,124**		

Table #7

Sensitivity Analysis - Marketing Strategy	NPV
Social discount rate of 10%	$ 1,774,189
10% annual increase in purchases of PCRP	$ 1,277,178
5% annual increase in purchases of PCRP	$ 606,593

Table #8

	2003			2004		
	Virgin	**Recycled**	**Total**	**Virgin**	**Recycled**	**Total**
Energy Usage (000 Btus/ton)	13,185,537	3,937,254	17,122,791	9,740,649	6,916,026	16,656,675
Atmospheric Emissions (lbs)						
Net Greenhouse Gases (CO2 Equivalents)	1,947,039	594,967	2,542,006	1,438,350	1,045,095	2,483,446
Nitrogen Oxides	6,383	2,045	8,428	4,716	3,592	8,308
Sulfur Oxides	9,085	3,089	12,174	6,712	5,426	12,137
Solid Wastes	766,616	225,222	991,838	566,328	395,616	961,944
Waterborne Wastes	37,666	10,495	48,161	27,825	18,435	46,260
Effluent Flow (gals/ton]	7,034,196	2,057,011	9,091,208	5,196,424	3,613,266	8,809,689
Wood Use (pounds of trees)	2,376,773	571,745	2,948,518	1,755,811	1,004,305	2,760,115

	2005			2006		
	Virgin	**Recycled**	**Total**	**Virgin**	**Recycled**	**Total**
Energy Usage (000 Btus/ton)	7,084,108	9,213,140	16,297,249	5,313,081	10,744,550	16,057,631
Atmospheric Emissions (lbs)						
Net Greenhouse Gases (CO2 Equivalents)	1,046,073	1,392,217	2,438,290	784,555	1,623,632	2,408,187
Nitrogen Oxides	3,430	4,785	8,215	2,572	5,581	8,153
Sulfur Oxides	4,881	7,228	12,109	3,661	8,429	12,090
Solid Wastes (lbs)	411,875	527,018	938,893	308,906	614,619	923,525
Waterborne Wastes (lbs)	20,237	24,557	44,794	15,177	28,639	43,817
Effluent Flow (gals/ton]	3,779,217	4,813,389	8,592,606	2,834,413	5,613,471	8,447,884
Wood Use (pounds of trees)	1,276,953	1,337,878	2,614,831	957,715	1,560,260	2,517,975

Table #9

Monetized Atmospheric Emissions (Kenneth Small, 1995)	
Atmospheric Emissions (lbs)	
Net Greenhouse Gases (CO2 Equivalents)	$2.06 per ton / yr
Nitrogen Oxides	$7.47 per ton / yr
Sulfur Oxides	$76.78 per ton / yr

Assumption: CO2 equivalents have same cost as Volatile Organic compounds

2,205 pounds per ton

1.2973 USD/CDN Fx Rate

Table #10

Ecological Benefits (Savings)	**2004**	**2005**	**2006**	**Total**
Energy Usage (000 Btus/ton)	466,116	825,543	1,065,161	**2,356,820**
Atmospheric Emissions (lbs)				
Net Greenhouse Gases (CO2 Equivalents)	58,560	103,715	133,819	**296,094**
Nitrogen Oxides	121	214	276	**610**
Sulfur Oxides	37	65	84	**186**
Solid Wastes(lbs)	29,894	52,946	68,313	**151,153**
Waterborne Wastes (lbs)	1,901	3,367	4,344	**9,611**
Effluent Flow (gals/ton]	281,518	498,602	643,324	**1,423,444**
Wood Use (pounds of trees)	188,402	333,686	430,542	**952,631**
Trees (578lbs/tree)	326	578	745	**1,649**

Table #11

Sustainability Office Income Statement (Opp. Costs)	2004	2005	2006
Revenue (cost centre no revenue)	0	0	0
Expenses:			
Wages (2 people)	10,000	11,000	11,000
Bonus (10%)	1,000	1,100	1,100
Marketing:			
Cost of Promotional Packets	1,340	1,000	500
Cost of recycling Party	6,000	6,000	6,000
Promotonal cost with end user	2,660	2,000	2,000
Misllaneous			
Telephone/Electricity/Office	2,400	2,400	2,400
Furnitures	500	-	-
Net Income	- 23,900	- 23,500	- 23,000

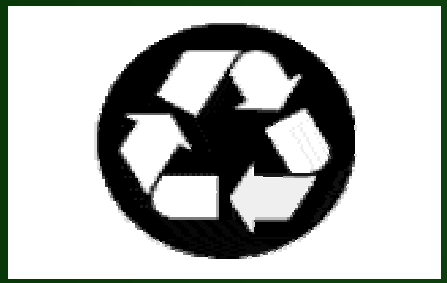
Recycling Sense

Learning about Post-Consumer Recycled Paper

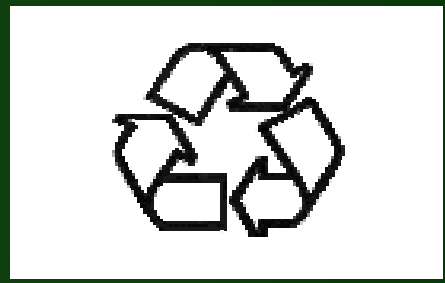
…….because we should care

Recycling Sense

First things first.....
Do you know what the difference between these symbols is?



Products that display this symbol were manufactured with at least some materials that have been recycled.



Products that display this symbol can be recycled or recyclable

So when buying Post-Consumer Recycled paper always look for the first symbol!

Post-Consumer Recycled Paper (PCRP)

- The post-consumer content is represented as a percentage inside the symbol or recycled materials.

- Today, 30% post-consumer recycled paper and virgin paper are *identical in quality*. They look the same and function equally well

Recycling Sense

Myths about PCRP

MYTH: *Recycled paper jams copiers*.

FACT: Today's recycled copier paper is high quality and technically perfected for use in copiers. If the paper jams in a copier, it is not because of the recycled content. It may be that the ream sat opened for a long time and absorbed moisture.

MYTH: *The little fibers in recycled paper create too much dust in machines.*

FACT: Excessive dust comes not from recycled fibers but from inadequate production processes or incomplete vacuuming of cut paper sides.

MYTH: *You can tell which paper is virgin and which one is 30% PCRP*.

FACT: 30% PCRP looks just as virgin paper, it has the same appearance in terms of shine, colour and weight.

Recycling Sense

Environmental Benefits

For every ton of paper

Environmental benefits of 30% Post Consumer Recycled paper vs. Virgin Paper	
Reduction in Energy Usage (000btu/ton)	5,041.9
Reduction of Atmospheric Emission (lbs):	
Net Greenhouse Gases (CO_2 Equivalents)	629.3
Nitrogen Oxides	1.3
Sulfur Oxides	0.3
Reduction of Solid Waste (lbs)	324.5
Reduction in Waterborne Wastes (lbs)	20.8
Reduction in Wood Used (lbs. of trees)	2,080.0

Recycling Sense

UBC's Declaration

- UBC has agreed to provide a formal statement of commitment in response to global and local concerns regarding environmental protection. Help us fulfill our commitment by using Post Consumer Recycled Paper.

- For more information visit:
  http://www.universitycounsel.ubc.ca/policies/policies.html
  Environmental Protection Compliance
  Sustainable Development

Recycling Sense

How to purchase PCRP

- UBC has signed a contract with Unisource as the authorized supplier of paper and negotiated very competitive prices for 30% post-consumer recycled paper.

•From now on when your department needs paper, call Unisource and ask for 30% post-consumer recycled paper, as virgin is the default paper it will send you if you do not specify.

unisource CANADA

604-520-7440

Recycling Sense

Price List

unisource CANADA

604-520-7440

Eureka 30% **Post Consumer Recycled**		Unisource Code	Price (1,000 sheets)
8 ½ X 11	5000/Ctn	574150	$6.70
8 ½ X 14	5000/Ctn	574155	$8.54
11 X 17	2500/Ctn	574160	$13.39
8 ½ X 11 – 3HP	5000/Ctn	574151	$7.17
Eureka 100% **Post Consumer Recycled**			
8 ½ X 11	5000/Ctn	574405	$10.39
Torchglow Multipurpose Colours 30% Post Consumer Recycled			
8 ½ X 11	500/Pkg	5718(xx)	$9.17
8 ½ X 14	500/Pkg	5718(xx)	$11.83
11 X 17	500/Pkg	5718(xx)	$18.55
Blue (02), Buff (03), Canary (04), Cherry (05), Cream (14), Goldenrod(06), Gray (07) Green (09), Ice Mint (106718), Ivory (10), Lavender (08), Pink (11), Salmon (12), Tan (13)			

….Thanks for caring

The UBC Campus Sustainability Office

A Department of Land and Building Services

www.sustain.ubc.ca

Do you really have a Recycling Sense ?

Imagine, more than 1,000 trees can be saved every year if everybody at UBC buys 30% post-consumer recycled paper instead of virgin paper!

Post-Consumer Recycled Paper, is created from products that have passed through their end use as a consumer item. Its usage reduces the amount of waste going into the landfill as well as avoids the usage of our natural resources.

30% post-consumer recycled paper and virgin paper are *identical in quality*. They look the same and function equally well.

UBC has signed a contract with Unisource as the authorized supplier of paper and negotiated very competitive prices for 30% post-consumer recycled paper.

From now on when your department needs paper, call Unisource and ask for 30% post-consumer recycled paper as virgin is the default paper it will send you if you do not specify.

Now it is in your hands, let's work together for a better future

unisource CANADA 604-520-7440

		Unisource Code	Price (1000sheets)
Eureka 30% **Post Consumer Recycled**			
8 ½ X 11	5000/Ctn	574150	$ 6.70
8 ½ X 14	5000/Ctn	574155	$ 8.54
11 X 17	2500/Ctn	574160	$ 13.39
8 ½ X 11 – 3HP	5000/Ctn	574151	$ 7.17
Eureka 100% **Post Consumer Recycled**			
8 ½ X 11	5000/Ctn	574405	$ 10.39
Torchglow Multipurpose Colours 30% Post Consumer Recycled			
8 ½ X 11	500/Pkg	5718(xx)	$ 9.17
8 ½ X 14	500/Pkg	5718(xx)	$ 11.83
11 X 17	500/Pkg	5718(xx)	$ 18.55
Blue (02), Buff (03), Canary (04), Cherry (05), Cream (14), Goldenrod(06), Gray (07) Green (09), Ice Mint (106718), Ivory (10), Lavender (08), Pink (11), Salmon (12), Tan (13)			
Econosource Virgin Copy Paper			
8 ½ X 11	5000/Ctn	575731	$ 6.21
8 ½ X 14	5000/Ctn	575733	$ 7.91
11 X 17	2500/Ctn	575734	$ 12.41
8 ½ X 11 – 3HP	5000/Ctn	575732	$ 6.68

The UBC Campus Sustainability Office
A Department of Land and Building Services

Printed on recycled paper

Appendix 9: Newsletter Example

Recycling Sense

E-Newsletter

Vol. 1 No. 1 January, 2004

Because we should care……Buy Post-Consumer Recycled Paper

Do you know what Post-Consumer Recycled Paper is?

Post-Consumer Recycled Paper, comes specifically from products that have passed through their end use as a consumer item. It is retrieved through residential and commercial recycling programs. From an environmental perspective, the higher the post-consumer content, the better, as this supports collection programs that help "close the loop" and reduce the amount of waste going into the landfill.

Today, 30% post-consumer recycled paper and virgin paper are identical in quality. They look the same and function equally well.

If you are not currently buying post consumer recycled paper in your department contact Unisource http://www.unisource.ca (604-520-7440) as they have signed a contract with UBC and can offer 30% post consumer recycled paper at a very competitive price.

Visit http://www.sustain.ubc.ca/sctools/purchrecycled.htm to find out more about the tools available on how to increase the percentage of post consumer recycled paper that is purchased in your department.

Recycled Paper *Party !!*

If we really want to make a difference at least 70% of all the paper that is purchase at UBC should be 30% post-consumer recycled paper. As an incentive to increase this percentage, which is currently less than 39%, the sustainability office will keep record of all the paper purchases each department does and in every E-newsletter will recognize the people from each unit that is making the change possible. At the end of the year a party will be held to recognize all those people that did the extra effort and help UBC meet its annual goal. Each e-newsletter edition will have a link to the *"Race to the party"* spreadsheet which will contain the information from each department on what percentage of post-consumer recycled paper they have bought. There will be different categories depending on the size of the departments so that everybody gets the same opportunity!

Stay tuned…….. !!!!!!

How to Make Recycled Paper at Home

Making recycled paper is messy. It is also a lot of fun. Someone will have to use a food processor and an electric iron. Both can be dangerous. So make sure that you get help on today's project because it is a big one. It is best to do this with some friends and family. That way you can spread the mess and the fun around.

What you need

2 full newspaper pages torn into 2-inch squares - food processor - 2 tablespoons white glue - 2 or 3 cups water - sink with 4 inches water - old panty hose - coat hangers - electric iron

Instructions

You're going to first make the frames that you'll use to make paper with. Undo the coat hanger and use the wire to make a flat square about 6 by 6 inches big. Stretch one leg of the panty hose over it. Take your time; it could snag. If you put tape on the ends of the wire, it will snag less. Make sure it is tight and flat. Tie knots in the hose. Use the other leg for another piece of paper. You will need one frame for every piece of paper you make. You might want to make more than one or two.

Put a handful of the paper and some water into the food processor. Close the food processor and turn it on high. Keep adding paper and water until you have a big grey blob. You may have to add a little more water to keep things moving smoothly. Keep the food processor on until all the paper has disappeared. Then leave it on for 2 whole minutes.

Put the glue in the sink water and add all of the paper pulp you just made. Mix it really well. Use your hands. Mix up the sink water again and then scoop the frame to the bottom of the sink. Lift it real slow. Count to 20 slowly while you are lifting. Let the water drain out for about a minute. Mix up the sink every time you make a new piece

Now you have to hang the frames on a clothesline or put them out in the sun. Wait until they are completely dry with no dampness at all. You Can then gently peel off the paper.

Have a grown-up use the iron - set on the hottest setting - to steam out your paper. You Can keep making paper until the pulp is all strained out of the sink.

See how strong your paper is. Trim it with scissors. Write on it. It is strong.

Thanks for caring……

If you have any questions or comments visit www.susatain.ubc.ca

www.sustain.ubc.ca

The UBC Campus Sustainability Office

A Department of Land and Building Services

Do you really have a Recycling Sense ?

Imagine, more than 1,000 trees can be saved every year if everybody at UBC uses 30% post-consumer recycled paper instead of virgin paper!

Can you tell the difference?

Virgin Paper	30% Post Consumer Recycled Paper

Lift the papers to see which one is virgin and which one is 30% post-consumer recycled paper

If you can not tell which one is virgin paper and which one is a *30% post-consumer recycled paper* or if your assumption was incorrect help us spread the word to increase the usage of Post -Consumer Recycled Paper.

The usage of Post-Consumer Recycled Paper, reduces the amount of waste going into the landfill as well as avoids the usage of our natural resources.

UBC is making an effort to increase the percentage of *30% post-consumer recycled paper* it is buying even though it is more expensive, help us increase this percentage….

Ask for 30% post-consumer recycled paper when printing or photocopying and help us save our environment.

….Thanks for caring

The UBC Campus Sustainability Office
A Department of Land and Building Services

Printed on recycled paper

End User – Survey Results

Methodology. Personal Interviews, where respondents where ask close ended questions and exposed to two types of paper: Eureka virgin Paper and Husky 30% Post-Consumer recycled paper (PCRP)

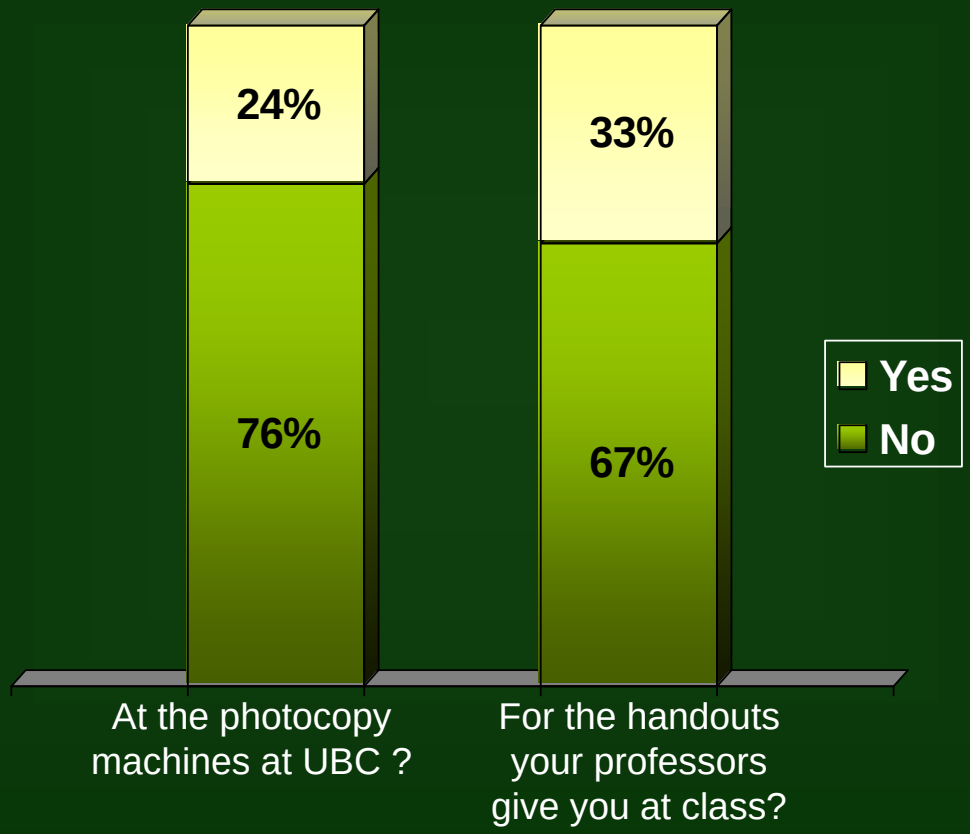
Respondents. UBC students with the following characteristics

Male 48% & Female 52%
Undergraduate 85% & Graduate 15%

Fieldwork. At UBC facilities during November 2003

Recycling Sense

Awareness of Post-Consumer Recycled Paper usage

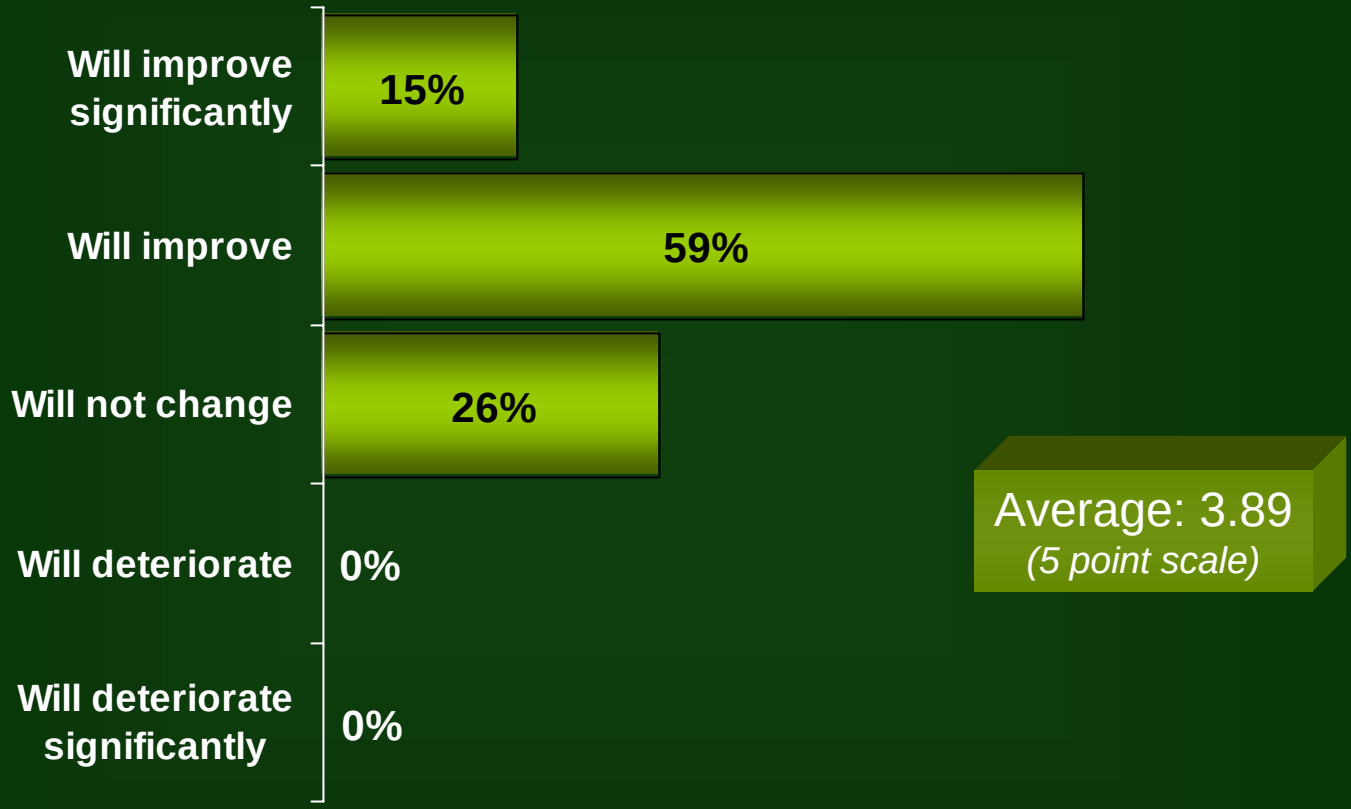


Do you know what type of paper is used…..

Base: 46 UBC Students

Recycling Sense

Impact on UBC's image

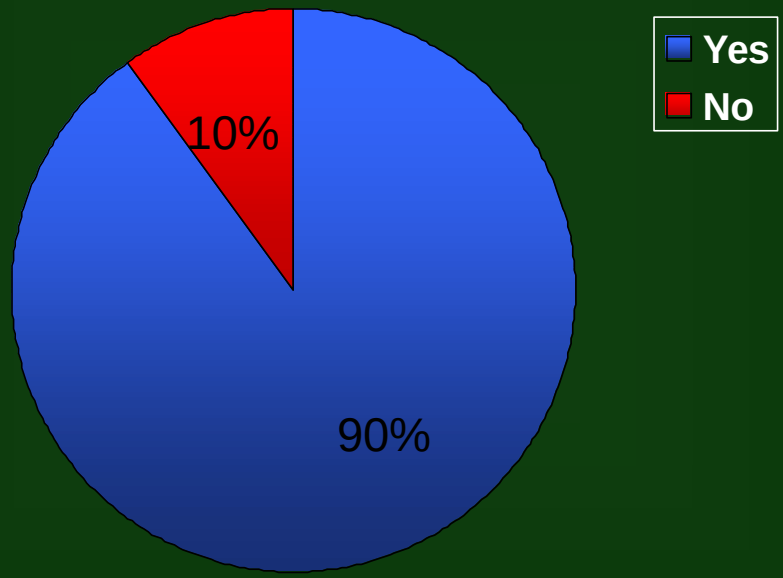


How much do you think the image of UBC will be affected if you knew that it is making an effort to purchase more PCRP even if it is more expensive?

Base: 46 UBC Students

Recycling Sense

Willingness to pay

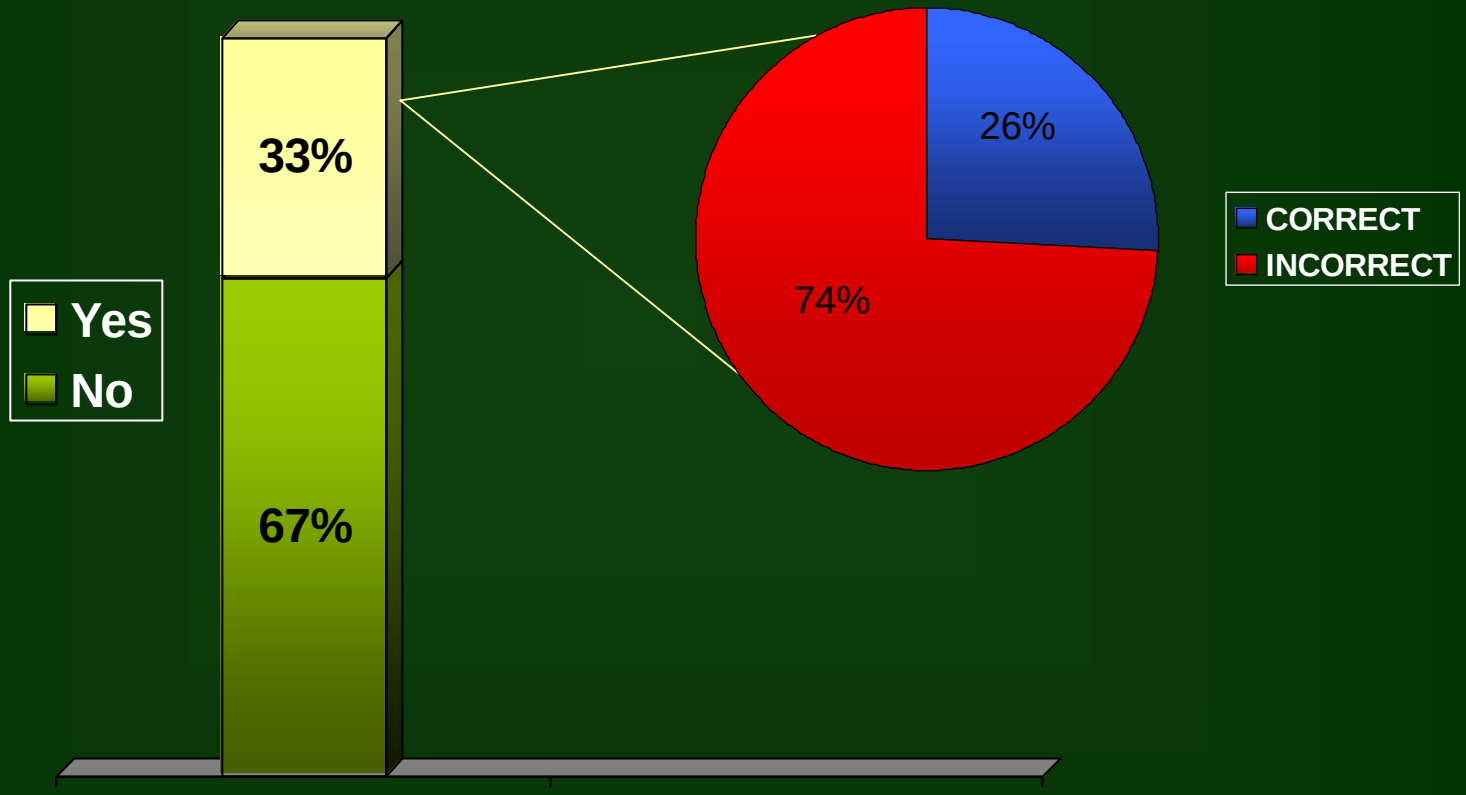


Will you be willing to pay half a cent more for a photocopy if you knew that the paper used is made out of recycled paper?

Base: 46 UBC Students

Recycling Sense

Visual Difference PCRP vs Virgin

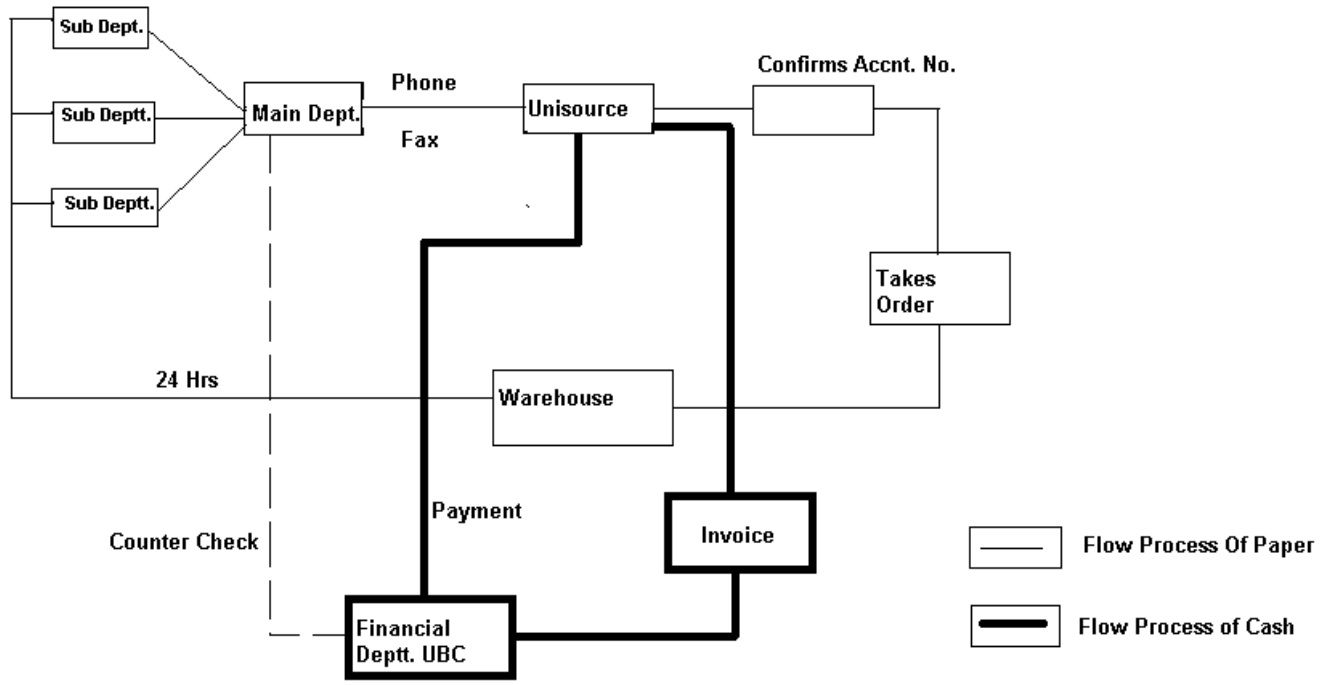


Can you tell which one of these is virgin and which one is PRCP?

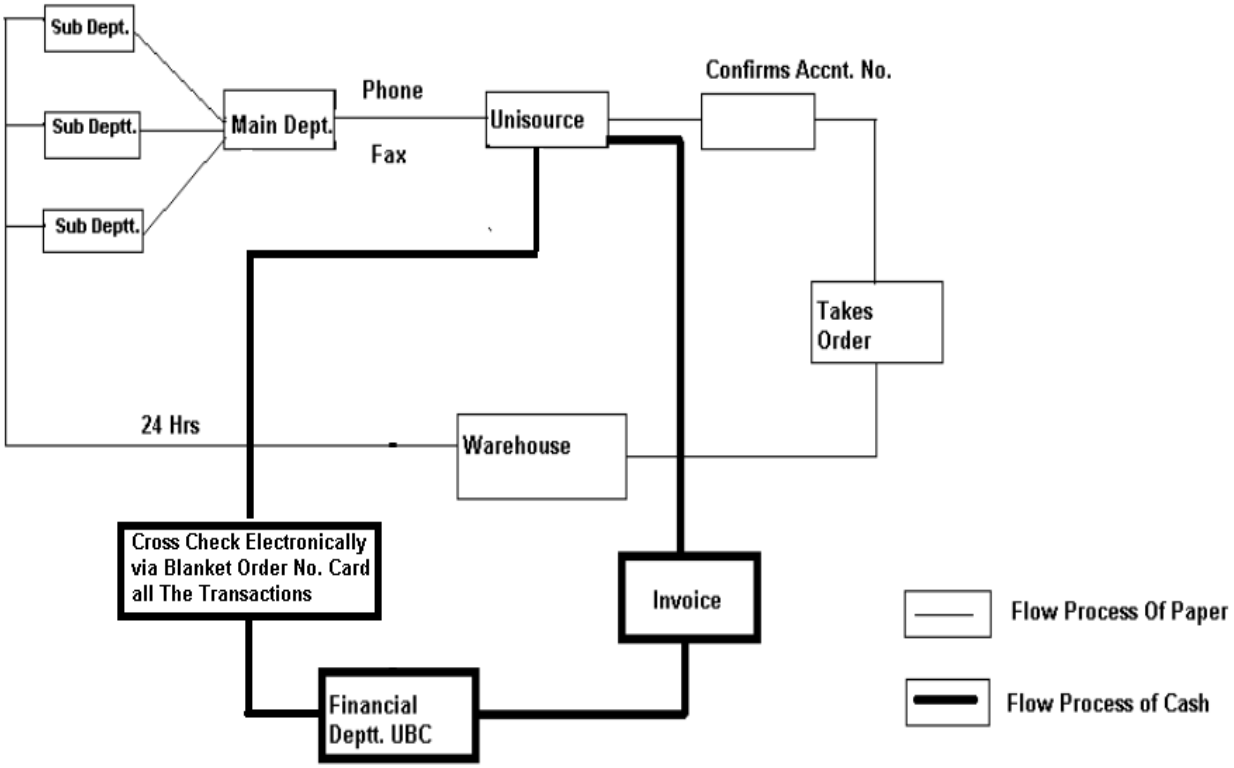
Base: 46 UBC Students

Appendix 12. Operating Flow Chart

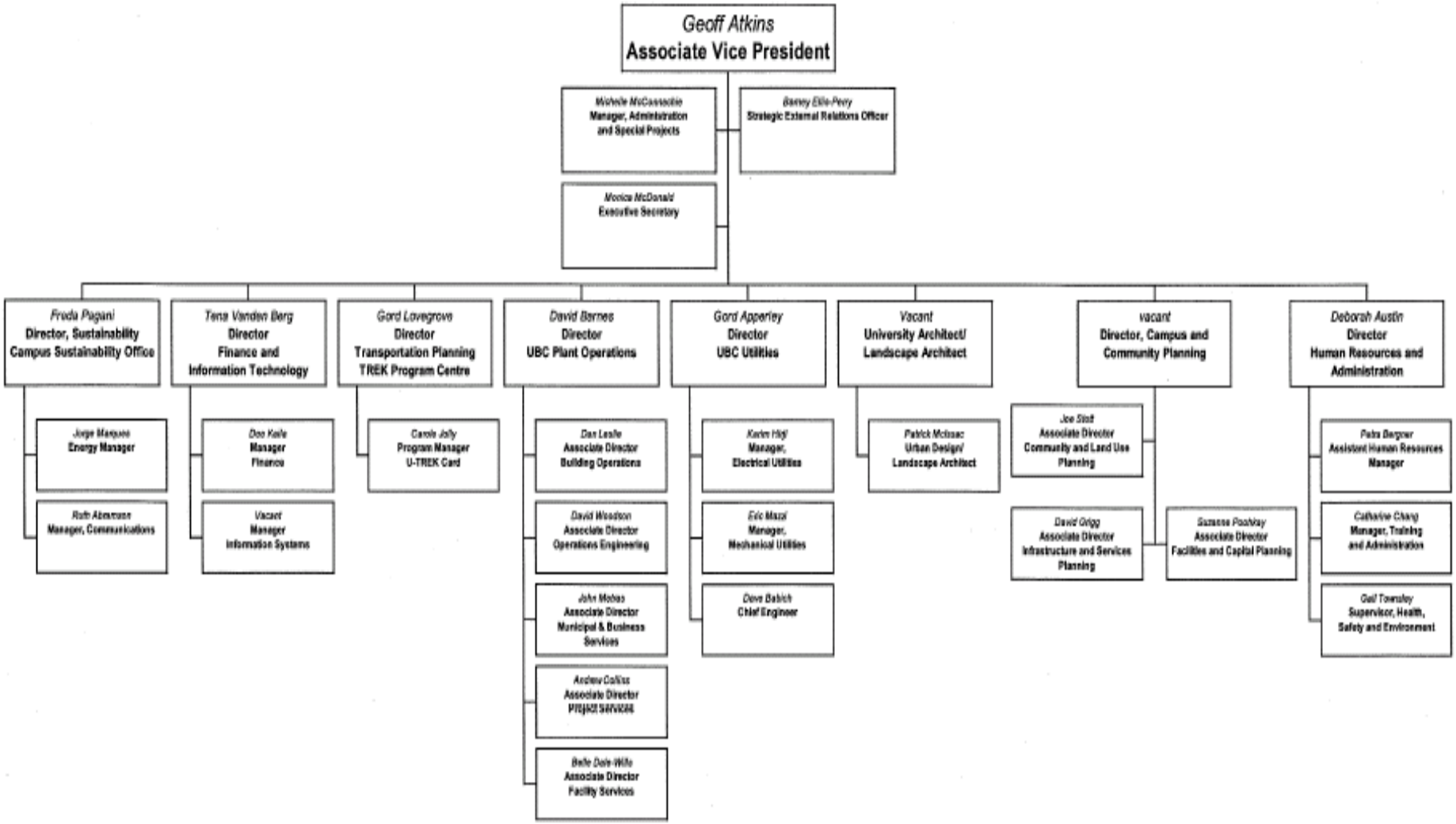
Current Operating Cycle Of Paper Flow and Cash Flow



Proposed Flow Process Under Centralized System



UBC Land & Building Services
Organizational Chart



21/11/03