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Analysis of consumer attitudes in Michigan about products containing recycled materials

Lai, Mei-Jung, Ph.D.

Michigan State University, 1991

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ANALYSIS OF CONSUMER ATTITUDES IN MICHIGAN ABOUT PRODUCTS CONTAINING RECYCLED MATERIALS

By

Mei-Jung Lai

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Resource Development

1991

ABSTRACT

ANALYSIS OF CONSUMER ATTITUDES IN MICHIGAN
ABOUT PRODUCTS CONTAINING RECYCLED MATERIALS

By

Mei-Jung Lai

This study was conducted to investigate consumer attitudes and actions concerning recycled materials. The main purposes were to understand consumer's attitudes about products and packaging containing recycled materials and to discover whether there is potential for increasing the market for recycled materials.

A statewide telephone survey was conducted to measure consumer attitudes toward recycling in general and toward products and packaging containing recycled materials in particular. Primary shoppers, aged 18 years or over, were selected for interviews within the randomly chosen households. A total of 224 respondents completed the interview.

Frequencies, correlation coefficients, analysis of variance, t-test, and crosstab tables were used in the test of hypotheses. The results showed that people who were more environmentally conscious were more willing to accept products containing recycled materials and were more willing to pay more for products containing recycled materials. The data revealed that education level and income level did not significantly influence consumer's attitudes toward greater consumption of products containing recycled materials.

Education and income also were not significantly related to willingness to pay more for products or packaging made with recycled materials.

Cost and quality both were important factors determining consumers' decisions to purchase products containing recycled materials. The more expensive the recycled product relative to a similar product made from new materials, or the lower the quality of the product made from recycled materials relative to the product made from new materials, the lower the rate of acceptance of the recycled product.

The findings also indicated that consumer attitudes about product acceptance differ for different types of recycled materials. Consumers viewed quality of recycled paper products differently than the quality of recycled products from aluminum, glass, plastic, and steel. A sizeable difference in consumer concerns about sanitation or cleanliness is evident when one contrasts food packaging and non-food packaging. The concern about sanitation or cleanliness of food packaging made from recycled materials was more than two times higher than the concern for non-food packaging made from recycled materials.

This dissertation is dedicated to my parents,

Ting-Kuo Lai And Kou Hsiu-Lien Lai.

ACKNOWLEDGEMENTS

I am grateful to many persons and several organizations for their support and contribution to the completion of this dissertation. I would like to thank Dr. Raymond D. Vlasin, my advisor and the chairperson of my doctoral guidance committee. Without his patience, endless support, and insightful advice, this dissertation could not have been completed. I thank Dr. Milton Steinmueller for his support throughout my Ph.D. program in Resource Development. Special thanks are extended also to Dr. Eckhart Dersch who provided great assistance for fundraising of this study, to Dr. John Schweitzer who provided valuable assistance for the statistical analysis of this study, and to Dr. Sue Selkie, Dr. Cynthia Fridgen, and Mr. Joel Lichty for their information assistance. I also thank Dr. Bella Mody, Dr. Rex L. LaMore and Mr. John Melcher for their encouragement, understanding, and assistance during the period I was engaged in the dissertation research and writing.

I am grateful also to Urban Affairs Program at Michigan State University, and to the Sage Foundation, Dow Chemical Company, and Kroger Inc. for their financial support.

Great appreciation is extended to Mr. John C. Chou for his encouragement and inspiration. Finally I would like to

thank my parents, my brothers and sister for their love, understanding, and financial assistance.

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CHAPTER I

INTRODUCTION

This research investigates consumer attitudes and behavior in Michigan toward products containing recycled materials. Consumer attitudes and behavior directly affect market demand for products made of recycled materials. Increasing market demand for recycled materials is an essential part of any policy for increased use of recycled materials. The findings should provide insights about how to affect market demand for recycled materials.

America has become a throwaway society during last century. Americans produce 160 million tons of solid waste annually - 3.5 pounds per person a day (Beury, 1989). The amount of solid waste produced has continued to increase, while disposal capacity in the nation's landfills is decreasing. Nearly one third of the nation's current landfills should be full within the next five years (O'Leary et. al., 1988). Siting new landfill facilities has been greatly hampered by concerned citizens and protest groups. Citizens, fearing environmental pollution and depressed property values, state openly that they do not want waste in or even near their communities.

Disposition of wastes through incineration has not been an answer. While the siting of landfills has been greatly slowed by citizen action, the siting of incinerators has been

brought to a standstill in some communities. The issues of dioxins in stack emissions and of organic and heavy metals in ash have brought added local opposition to solid waste incineration.

Recycling has been, and now is, considered one of the best alternatives for waste reduction. Nationally, only about 10 percent of our solid waste is recycled. The U.S. Environmental Protection Agency (EPA) has set a recycling and waste reduction goal of 25 percent of the nation's waste stream by 1992 (Beury, 1989). Some states such as California, Florida, New Jersey, Maryland, Pennsylvania, Rhode Island, and Oregon have initiated various mandatory recycling laws which could help meet this goal (Treadaway, 1989).

In Michigan, at least 70 percent of the 26,000 tons of waste generated each day could be recovered and converted into reusable materials and energy (Michigan Department of Natural Resources, June 1988). Currently, it is estimated that in Michigan only 10 to 15 percent of the waste is recycled. The state Solid Waste Policy promotes a statewide goal of recycling 20 to 30 percent of solid wastes by 2005 (Michigan Department of Natural Resources, June 1988).

Statement of the Problem

The general problem to be explored in this research can be phrased in two questions: (1) "What are consumer attitudes and actions regarding products containing recycled materials?"

(2) "What are the implications of consumer attitudes and actions for recycling efforts and the market for recycled materials?"

Recycling involves separating certain materials from the waste stream and processing them into raw materials for future use or directly into new products. Recyclable materials include paper, glass, metals, plastic and motor oil.

A typical community recycling program starts with households separating one or more of these recyclable materials from the rest of their garbage. Then, the recyclable materials are taken to a drop-off site, or may be picked up from each home. Studies show that separation of materials for recycling at the household level can be achieved fairly easily because it makes people feel good that they are contributing to a cleaner environment (White, 1989). A 1989 survey (Glenn and Riggle, 1989) found that separation and collection of materials is becoming widespread. Collection programs were identified in 35 states.

However, separation and collection constitute only the first steps of recycling. Recycling is not completed unless the materials are brought back into productive use in manufacturing and production, and those materials are purchased by consumers and other users. The problem is that those householders who are willing to separate their recyclable materials from their garbage may not be willing to buy products containing recycled materials or to foster their

production and use. And, householders who are not willing to separate recyclable materials may be even less willing to purchase products made from such materials.

At present, the demand for products made from recycled materials lags far behind the quantities of materials available for those purposes. Lack of demand by consumers and other users results in a stockpiling of unmarketable recycled materials that could require landfilling.

A report from the Michigan Recycling Promotion Advisory Committee (October, 1988) revealed that there was not a strong demand for recycled products. The reasons given were: (1) some people still believe that products made from waste cannot perform as well as those made from new material; (2) despite considerable improvements in recycling technology over the last two decades, people who have had negative experiences with recycled products in the past are unwilling to try those being made today; and (3) some people will purchase recycled goods only if their initial cost is significantly less than those for goods made from new materials.

In a recent article, Treadaway (1989) reported that recycling has proved to be too successful because recycling companies in the Northeast were receiving such massive quantities of paper that a recyclable paper glut resulted. He also pointed out that markets for most recycled products have been slow to develop because of both a persisting bias against products with some recycled content and bias toward those made

only from virgin materials. A survey (O'Riordan and Turner, 1979) conducted in one United Kingdom community found that householders viewed recycled paper as being among inferior quality goods.

The long term health of recycling efforts depends on the markets for the recycled materials. The health of these markets depends upon the demands for products made with recycled content. Past studies reveal that consumer attitudes must be addressed if communities and states intend to help solve the solid waste crisis through more recycling. Despite the important role of consumer attitudes and actions toward products containing recycled materials, such attitudes and actions have received little attention in previous studies concerning market development of recycled materials.

Objectives of the Study

The general objective of the study is to learn more about consumers' attitudes and actions toward products made with recycled materials. More specifically, the objectives of this study are:

1. To understand consumers' attitudes about products containing recycled materials.

2. To determine how satisfied consumers are with their uses of products containing recycled materials.

3. To identify circumstances that motivate consumers to accept products containing recycled materials.

4. To discover whether there is potential for increasing the market demand for recycled materials.

The study will survey consumers about their attitudes and actions toward products containing recycled materials. The findings derived from this study are expected to provide insights into the nature and importance of consumer attitudes and actions about the acceptance of products containing recycled materials. They should help in understanding ways to affect the level of market demand for recycled materials. Moreover, the information may be helpful to manufacturers who make use of recycled materials. The findings are also expected to be useful to state and local governments (legislative, executive and administrative) as they develop action plans for improved recycling programs.

CHAPTER II

REVIEW OF THE LITERATURE

Attitude is generally described in terms of intervening mental or hypothetical concepts which determine behavior regardless of its situational context. Behavior is represented as the result of attitudes which are the output of interpersonal information processing. Therefore, it is easy to understand that consumer attitudes are important factors influencing consumers' purchasing decisions. An understanding of the way in which consumer attitudes are formed, reinforced, and modified is therefore or prime importance to the marketing of products containing recycled materials.

In the review of the literature, the researcher will first review the relevant concepts concerning attitude, the functions of attitude, and theories and models of attitude. Then the measurement of attitude will be reviewed. These will be followed by the review of key past studies and findings concerning consumer attitudes toward products using recycled materials.

This review of past findings will provide a basis for the efforts planned under this study. It will be particularly helpful in the selection and use of theoretical concepts about attitudes and behaviors. It will be helpful also in the design of approaches to measurement of consumer attitudes, and in formulating hypotheses to be addressed in the research.

Concept of Attitude

The concept of "attitude" has long been of critical importance in attempts to explain consumer behavior. The concept of attitude is probably the most characteristic and essential concept in contempory American social psychology (Allport, 1935). An examination of the literature reveals many definitions of attitude. Allport traced the study of "attitudes" to 1862, when Herbert Spencer employed "attitudes" in his First Principles (Allport, 1985, p. 35). Herbert Spercer wrote,

> ".. arriving at correct judgement on disputed questions, much depends on the attitude of mind we preserve while listening to, or talking part in, the controversy; and for the preservation of a right attitude it is needful that we should learn how true, and yet how untrue, are average human belief."

Then in 1888, L. Lange discovered that a subject who was consciously prepared to press a key at the onset of a stimulus responded more quickly than a subject whose attention was instructed mainly to the incoming stimulus and whose consciousness was therefore not focused primarily upon the expected reaction. This phenomenon was called the "subject's task attitude," or "Aufgabe". L. Lange developed the first clearly recognized attitude measures in connection with his study of reaction time (Allport, 1985, p. 36).

A second historical root is found in psychology's attraction to individual differences. Individual differences are considered the most important theme throughout the concept of attitude. Because of the feeling of need for a concept to explain the consistency in individual behavior across a variety of situations, many scientists have chosen the concept of "attitude". Whether psychologist or sociologist, both have found the concept of attitude useful.

In early twentieth century, Washburn (1916) characterized attitude as "static movement systems" within the organs of the body and the brain. Later, Freuds' followers endowed attitudes with many attributes which are currently ascribed to attitudes, "..equating them with longing, hatred, and love, with passion and prejudice, in short, with the onrushing stream of unconscious life." (Allport, 1985, p. 37). According to Allport, the sociologists added the important dimensions to the concept of attitude making it popular in contempory American social psychology. Thomas and Znanieck were the theorists who gave the concept of attitude systematic priority in their study of Polish peasants. They defined attitude as "..a process of individual consciousness which determines real or possible activities of the individual in the social world."

After a careful survey of the various senses in which it was used, Allport proposed that attitude is "..a mental and neural state readiness, organized throughout experience,

exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related." (Allport, 1985, p. 37). For Allport, attitudes were more or less favorable or unfavorable to particular persons, and events.

Another definition of attitude was popularized by cognitively-oriented social psychologists. In 1948, Krech and Crutchfield defined an attitude as "..an enduring organization of motivational, emotional, perceptual, and cognitive processes with respect to some aspect of the individual's world." (Krech and Crutchfield, 1948, p. 152). Under this definition, attitude is viewed as consisting of three components widely used by many researchers: the cognitive or knowledge component; the affective or emotional component; and the conative or behavior-tendency component.

The Cognitive or Knowledge Component

The cognitive component consists of an individual's beliefs, knowledge, and opinions about an object. The cognitive beliefs include specific evaluation of aspects and prescriptions about what should be done about the object if it is viewed favorably or unfavorably.

The Affective or Emotional Component

Individual feelings or emotional reactions to an object represent the affective component of an attitude. A consumer who states, "I like new products" or "new products have better quality," expresses the results of an emotional or affective

evaluation of the virgin products. These attitudes statements indicate an overall evaluation of the virgin products. Due to different motivations and personalities, past experiences, reference groups, and physical conditions, different individuals may evaluate the same belief differently. Some individuals may have a positive feeling toward the belief "recycled materials are of same quality as new materials" while others may respond with a negative reaction.

The Conative or Behavior-Tendency Component

The conative component refers to behavioral tendencies toward an object. A decision to purchase a product containing recycled materials would reflect the behavioral component of an attitude. Although attitudinal effects on behavior are complex, the conative component seems most closely related to consumer purchasing behavior.

The Functions of Attitude

More recently, theorists have given more attention to a new definition of attitude which explicitly views attitudes as being multi-dimensional in nature, as opposed to the undimensional emphasis given by earlier definitions. According to Smith, Bruner, and White, attitude was defined as "a predisposition to experience, to be motivated by, and to act toward, a class of objects in a predictable manner" (Smith, Bruner, and White, 1956, p. 39). Smith and colleagues view attitude toward objects as having various characteristics such

as differentiation, salience, informational support and object value (Insko, 1967, p. 331).

Katz (1960) developed a theory similar in many aspects to that of Smith, et al. Katz indicated that attitudes include both affective and the cognitive elements which describe the object of the attitude, its characteristics and its relations to other objects (Katz 1960, p. 343). Like Smith, et al., Katz presented various dimensions of attitudes. He mentioned various things such as intensity, specificity or generality, differentiation, number and strength of linkages to a related value system and relation to overt behavior (Insko, 1967, p. 334).

Katz identified four major functions of attitude for individuals. They are the adjustive function, the ego defense function, the value expressive function, and the knowledge function (Katz, 1960, p. 170).

The Adjustive Function

The adjustive function was described as the development of attitudes that lead most efficiently toward perceived desirable rewards and away from perceived undesirable ones. A consumer who learned from past experience that a recycled paper product was inferior in quality to a new paper product, may not readily accept a recycled plastic product.

The Ego Defense Function

The ego defense function allows people to protect themselves from acknowledging their deficiencies. To a great

extent, the attitude of negative prejudice (about other people and things) helps the individual sustain his/her self-concept by maintaining a sense of superiority over others.

The Value Expressive Function

This function gives positive expression to the external world of an individual's own values. It provides a useful linkage between the nature of "inner self" and the external world. Attitudes of environmental concern may be expressed in drinking beer in returnable bottles, turning in aluminum cans, and buying recycled products.

The Knowledge Function

This function represents the cognitive component of attitude which gives coherence and direction to experience. Katz argued that knowledge was sought in order to give meaning to what would otherwise be an unorganized and chaotic universe. The knowledge function appears to rule consumers' selective perception processes, and helps explain consumers' resistance to persuasion from unknown or disliked marketers.

Main Theories and Models of Attitude

Attitude theories primarily deal with how attitudes develop and change. The concept that consumers attempt to have harmonious relationships in their thoughts and feelings is the key concept or component in the theories of consumer attitude. If the mind perceives an inconsistency within its attitude structure, mental tension develops and eventually

returns the structure to a consistent state.

Two classic theories based upon the consistency principle are the balance theory and the cognitive dissonance theory. The newer multi-attribute attitude theories will be discussed after a review of these two traditional theories.

Balance Theory

The balance theory was developed in 1946 by Fritz Heider. The balance theory dealt with social influences and their impacts on attitudes. According to Heider, a person perceived her or his environment in terms of triads. That is, a person viewed herself or himself as being involved in a triangular relationship in which all three elements--a key person, second person and an object--had either a favorable or unfavorable relationship with one other. The entire triad represented the perceptions of the key individual and not necessarily an objective reality.

A triad could be balanced or unbalanced. Balanced triads represented consistent relations. Little tension arose with no particular tendency to change current attitudes. The unbalanced triads provide very different cases, however. In unbalanced triads, some tension was present and relations were less consistent. And, there was at least some change in attitudes (Wilkie, 1986; Loudon and Della Bitta, 1984).

The basic concept of balance theory is that people want to hold beliefs and attitudes that are internally consistent for them. Although consumer attitudes are usually more

complex than the triads themselves, the balance theory has proved to be helpful to the recognition of how attitudes operate (Wilkie, 1986, p. 454). When triads are balanced, the stability of a consumer's attitude is presented. When triads are unbalanced, a consumer's attitude is likely to change. The consumer will either (1) shift his/her perception of one of the relationships to bring the triad into balance or (2) reduce his/her involvement level with the product or issue so the tension is easier to handle (Wilkie, 1986, p. 454).

Cognitive Dissonance Theory

The cognitive dissonance theory was formulated by Leon Festinger in 1957. The central assumption of the theory was that a person could not tolerate inconsistency. Festinger described cognitive dissonance as a psychological state which resulted whenever one cognitive element conflicted with another. The resulting dissonance produced tension, which served to push the individual to restore harmony to the inconsistent elements and thereby reduce unpleasant tension. An important point in the theory was that one of the ways in which the subject could change a set of dissonant cognitive elements to a set of consonant elements was by changing his/her behavior, if that behavior comprises one of the dissonant elements (Zimbardo and Ebbesen, 1969, pp. 67-72).

Dissonance usually arises in three ways: (1) any logical inconsistency can create dissonance; (2) when a person experiences an inconsistency either between his/her attitude

and behavior or between two of his/her behaviors; and (3) when a strongly-held expectation is disconfirmed. Dissonance may be reduced: (1) by attempting to revoke the decision; (2) by seeking additional information that is supportive of, or consistent with his/her behavior; and (3) by lowering the importance of the cognition or the decision (Zimbardo and Ebbsen, 1969, pp. 67-72).

The stress on the consumer's motivation to reduce tension following an important purchase decision is the significant contribution of cognitive dissonance theory. In terms of post-purchase, it is the total amount of dissonance that the consumer experiences that is important (Wilkie, 1986, p. 556). The more dissonant cognition the consumer experiences regarding a decision, and the more important the decision is to the consumer, the higher the consumer's dissonance will be. Since dissonance produces uncomfortable feelings, the consumer is motivated to reduce the amount of dissonance which he/she is experiencing.

Multi-attribute Attitude Models

Although the balance and cognitive dissonance theories provide significant insight, recent research attention has focused on multi-attribute attitude models. The attraction of these newer models lies in their views of attributes as having more than one dimension. These models focus on the factors that contribute to overall attitudes and their evaluation by the consumer.

The multi-attribute approach suggests there are only two components:

1. Beliefs about the specific attributes of a product, such as price, durability and other characteristics of the object itself.

2. Evaluating aspects of those beliefs--how the consumer evaluates the importance of each attribute in satisfying the consumer's needs (Berkman and Gilson, 1981, p. 315).

Because a number of marketers and consumer behaviorists give much attention to the Fishbein model, it will be reviewed here as an example of multi-attribute models. Fishbein developed the model to predict a person's attitude toward an act (Loudon and Della Bitta, 1984, pp. 531-532):

$$A = \sum_{i=1}^{n} BiAi$$

A = the attitude toward performing a particular act, such as purchasing a particular brand;

Bi = the individual's perception or belief that performing the behavior will lead to some consequence i;

Ai = the individual's evaluation of consequence i;

n = represents the number of salient consequences involved.

A number of studies have been conducted using the

Fishbein model to predict consumer behavior. The general results suggest that information regarding consumers' beliefs and evaluations generated by a multi-attribute model can provide important knowledge relevant to marketing strategies. Fishbein's model provides an insight into the structure of a consumers' attitudes--to tell us why consumers like or dislike certain products.

Because Fishbein's attitude model focused on attitude toward objects (products) rather than relationships between attitudes and behaviors, Fishbein--with Ajzen's contribution--presented the behavioral intention model to extend his attitude model. In the behavioral intention model, behavioral intentions are posited as functions of attitudes toward performing an act in a particular situation and of the subject's normative beliefs about the social expediency of performing this act, as they are aroused by his/her motivation to comply with the social norms as he/she perceives them. Compared to Fishbein's attitude model, the important change of this behavioral model is that beliefs and evaluations are about certain actions and the consequences of these actions, rather than about an object's attributes.

The subjective norm component of the behavioral intentions model is expressed as follows (Loudon, Della Bitta, 1984, p. 536):

$$SN = \sum_{i=1}^{k} bimi$$

where SN = the individual's subjective norm regarding the specific behavior in question;

bi = the normative beliefs affecting the behavior that the reference group or person i thinks should or should not be performed;

mi = the motivation to comply with the thoughts of referent i;

k = the number of relevant referents.

Measurement of Attitude

Research involving attitude requires some form of measurement. Basically, attitude is measured for two reasons:

1. To determine existing attitudes toward a product which will help identify problems and opportunities.

2. To determine the effectiveness of an attitude change strategy.

According to Runyon (1977, p. 276), all attitude measuring instruments fall into one of the following categories: (1) direct questioning, (2) scaling techniques, (3) observations of overt behavior, (4) projective techniques, and (5) physiological measures. These five categories will be briefly reviewed. Then, levels of measurement and various types of scaling procedures will be discussed.

Direct Questioning

Attitude measurement involves asking direct questions of the respondent, either through the use of a self-administered questionnaire or through an interviewer. Some questionnaires rely on direct-questioning techniques that require simple "yes" or "no" answers to a question. Some questionnaires are a mix of highly-structured specific questions that are predetermined and formalized, and others questions that rely on an instructed approach in which the interviewer is free to vary the questions' form and to probe the respondent's reply by designing and asking spontaneous questions based on answers previously given.

Scaling Techniques

In psychological and consumer research, attitudes are measured by scale ratings of verbal statements about how a consumer feels about a stimulus, object, or situation. They are also measured by ranking the value of objects, ratings of mood, willingness to endorse a product, and likelihood of a subsequent behavior. Various types of scaling techniques will be discussed later in this section.

Observations of Overt Behavior

Attitudes may be measured by observations of behavior in natural or structured situations. In marketing research, researchers employ observational techniques to determine brand preferences. Observational techniques are used also in measuring consumers' reactions to package designs and

advertising.

Consumer testing is a technique in which a consumer is given a choice among competitive brands before and after exposure to a commercial for one of the brands. The commercial's effectiveness in changing attitudes is measured in terms of the number of respondents who switch their brand choices after viewing the commercial.

Projective Techniques

In using projective techniques, researchers show respondents an uncertain situation and ask them to respond. Some researchers may show respondents a picture and ask them to tell a story about it. Or researchers may give subjects an incomplete sentence and ask them to complete it. The theory underlying the use of projective techniques is that respondents will "project" their own feelings and beliefs into the uncertain situations.

Physiological Measures

Physiological measures attempt to ignore what the respondents say and obtain a direct measure of their unconscious physiological reactions. One instrument used is one which measures changes in the size of the pupil of the eye in response to emotion-evoking stimuli and which records eye-movements, thus enabling the researcher to determine the precise portion of a stimulus field upon which the subject is focusing. Although physiological measures have been used to some extent in determining the appeal of advertising, packages

and product designs, they remain in the periphery of attitude measurement.

Levels of Measurement

In attitude research there are several types of measurement scales available. The appropriate one to use depends on the researcher's assumption about how the numbers resemble real-world observations. Each measurement scale has its own underlying assumption about its correspondence to the real world (Luck and Rubin, 1987, p. 141). While there is a variety of measurement scales available for gathering information, all scales possess the properties of at least one of four types of measurement. The four types of measurement are: nominal, ordinal, interval and ratio.

Nominal measures. Numbers are used only as labels to classify objects. Examples would include use of numbers to designate sex, birthplace, college major and brand awareness.

Ordinal measures. Variables whose attribute may be logically rank-ordered are ordinal measures. Variables of this type are social class, attitudes and preference.

Interval measures. Attributes comprise some variables for which the actual distance separating those attributes has some meaning. Such variables are interval measures. Examples include differences in opinion and in attitudes for which some range exists. Differences in index numbers would be another example.

Ratio measures. In ratio measures, the attributes comprising a variable are based on a true zero point. Most of the social scientific variables meeting the minimum requirements for interval measures also meet the requirements for ratio measures. Examples would include age, costs, number of customers, length of residence in a given place, and sales units.

Types of Scaling Procedures

In 1925, Floyd H. Allport and D. A. Hartman published an article which proved to be the first step in a series leading to techniques for the quantification of attitude measurement (Kiesler, Collins, and Miller, 1969, p. 10). Allport and Hartman began by asking 60 upper-class college students to write their personal views on several topics including prohibition. A larger sample of under-class students were then asked to check the one statement which most nearly coincided with his or her own views. Compared to the traditional attitude measures in which the respondent indicated a "yes" or "no" for a question, this technique divided the subjects into a number of subgroups, which were rank ordered with respect to the attitudinal dimension.

In 1957, Edwards pointed out that one major assumption involved in the construction of attitude scale is that there are differences in the belief and disbelief systems of those with favorable attitudes compared to those with unfavorable attitudes (Edward, 1957, pp. 10-12). Although in reality not

all opinions and beliefs are expected to differ among persons with different attitudes toward social objects, if some statements of belief are symptomatic of an underlying favorable or unfavorable attitude toward an object, these beliefs can be used in a technique of measurement for the underlying attitude.

Scaling procedures considered here include the Thurstone, Likert, Guttman, Stapel and Semantic Differential approaches.

Thurstone-type Scales. In Thurstone-type scales, the first step is to scale the attitude statements along an attitude continuum. A number of short opinion statements about the subject to be measured are collected and categorized by judges into a series of eleven piles. The piles are arranged in sequence from highly favorable to highly unfavorable statements, with a neutral set in the center. This sorting procedure is known as the method of "equal-appearing intervals". The percentage of judges who place each item in the different categories composes the basic data for determining the scale value of the statements (Kiesler, Collins, and Miller, 1969, Berkman and Gilson, 1981).

Likert Scales. While Thurstone scales represent a procedure which required judges to sort items along an attitudinal continuum, the Likert Scales score attitudes directly from the attitudinal responses without depending on a panel of judges. In Likert scales, the respondent is asked

to indicate the degree of agreement or approval to all items on a five-point scale. For each attitude item, five response categories are provided: strongly agree, agree, undecided, disagree and strongly disagree. Respectively, scores are obtained by assigning the responses a 5, 4, 3, 2, and 1. The sum of the item scores constitute the individual's total score. This technique is said to be the method of summated ratings.

Guttman Scales. Respondents answering questions using Guttman scales agree or disagree with an item similar to questions using the Likert scales. However, if a Guttman statement is arranged, the agreement with a strongly favorable statement will probably indicate agreement with similarly strong favorable statements and disagreement with highly negative ones.

The Guttman scales and resulting analyses are usually applied to dichotomous data. Dichotomous data are data with only two values: 0 and 1, yes and no, agree and disagree. The Guttman scales are useful and important because many behavioral measures are dichotomous.

Stapel Scales. The Stapel approach uses a ten-point non-verbal rating scale to measure both intensity and direction of attitudes. Usually adjectives are used to describe a product or store, and respondents indicate their agreement or disagreement with adjectives on a scale from +5 (strong agreement) to -5 (strong disagreement). This technique is

quite useful for its simplicity and economical means of data-gathering.

The Semantic Differential. The above four methods all attempt to measure attitudes by having people indicate the extent of their agreement with various opinion statements. In contrast to this approach, the Semantic Differential measures attitude by focusing on the meaning people give a word or concept.

The Semantic Differential was developed by Osgood and his associates. The procedure is to have people judge a particular word or concept on a set of semantic scales. These scales are defined by verbal opposites with a mid-point of neutrality and usually consist of seven discriminable semantic steps (Zimbardo, 1969, pp. 127-128).

The Characteristics of Consumer Attitudes

The concepts and theories of attitude state or imply the following characteristics of consumer attitudes directly applicable to this study:

1. Attitudes are a scheme for simplifying consumer behavior. The mind cannot process, categorize and evaluate all necessary market information that leads to logical purchases in every situation faced. Attitudes provide the consumer with an immediate and appropriate response that bypasses much of the learning and thinking processes.

2. Consumer attitudes have polarity. The position taken

toward a market problem is often based on positive or negative attitudes. Positive attitudes lead people to act or react favorably to a product or an issue. Negative attitudes predispose people to avoid a situation by market action, but not preclude purchasing.

3. The recognition that consumer attitudes have a positive or negative direction is not enough. There are degrees of feeling involved with consumer attitudes despite the direction the attitude takes.

4. Consumer attitudes reveal a type of structure which is important in simplifying consumer behavior. Structure refers to the fact that there is a pattern or element of consistency to a person's beliefs and feelings, thus an attitude structure. Attitude structure is particularly important as an indicator of consumer behavior, because a person's purchase behavior can sometimes be determined through observing general behavior.

5. Consumer attitudes are formed as a result of personal learning based on experience. This personal experience is influenced by other people and by culture, including institutional arrangements that influence individual action. Therefore, external authorities and the consumer's cultural environment are important influences in the formation of consumer attitudes.

Consumer and Agency Attitudes about Products Containing Recycled Materials

In the 1970s, psychologists and sociologists became increasingly interested in ecologically-oriented behavior. Based on responses to a questionnaire designed to measure ecological attitudes and knowledge, Malloney and Ward (1973, pp. 583-586) stated that most people expressed a relatively high degree of verbal commitment and affect, with lower levels of actual commitment and knowledge about the environment. Brickman (1972, pp. 323-324) found a similar lack of relationship between attitudes and littering behavior. Brislin and Olmstead (1973, pp. 259-260) suggested that many people simply did not know how to translate their attitudes and intentions into behavior. However, McGuinness, Jones, and Cole (1977, p. 383) indicated that the majority of the sample demonstrated positive attitudes toward recycling, knew about the recycling program, and participated in the program at some level.

Because solid waste management has became one of the most important issues on national, state and local agendas, and because of positive attitudes toward recycling materials, recycling has been identified as one of the best alternatives for waste reduction. In 1986, the U.S. Environmental Protection Agency set a recycling and waste reduction goal of 25 percent of the nation's waste stream by 1992. Many states have set waste stream reduction goals and have initiated various types of mandatory recycling regulations to help reach

these goals.

Waste administrators have designed many mandatory and voluntary programs for sorting and collecting recyclable materials (O'Leary, Walsh and Ham, 1988, p. 38). The public has sensed the importance of reducing waste, and has developed a positive attitude toward recycling. Many household are willing to separate recyclable materials from their garbage.

Since 1985, the Packaging magazine has conducted a nationwide survey each year. The annual surveys revealed that over three quarters of the respondents felt recycling was at least somewhat important (Packaging Magazine, June 1986, June 1987, June 1988, and June 1989).

Supply-Demand Imbalance

Although recycling efforts have increased significantly during the past 10 years, studies show that markets for most recycled products did not follow the path of recycling efforts. In 1977, Lois Shapre stated that markets for the recycled materials had to be recognized as the critical factor. She suggested that without markets for separated secondary materials, neither mechanized separation nor home separation would accomplish what the public expected from resource recovery. Her view has proved correct.

Don DeMeuse, president of the Fort Howard Company, a leading wastepaper recycler, told the 9th National Recycling Congress in August 1990: "Cities may have enjoyed successful separation and collection programs, but things fell apart when

they discovered that no markets exist for their collected. The ultimate indignity is sending those collected materials to the landfill...that has happened over and over again" (Breen, 1990, pp. 44-45). DeMeuse's speech drew a clear picture of the supply-demand imbalance of recycled materials in the late 1980s.

The problem of the supply-demand imbalance of recyclable materials has been discussed in several studies. Eldred (1987) pointed to a controversy beginning in the industry about possible conflicts between private firms processing commodities and public programs promoting collection of recyclable materials. He also noted that collection and removal of items from the waste stream does not mean those items will be recycled.

Increasing the market demand for products made from recycled materials would be one major solution. White (1989) indicated that compulsory recycling in New Jersey created an over-supply of old newspapers for the local mills. He viewed finding suitable outlets for the old newspapers as a major problem.

Treadaway (1989) provided similar observations. He reported that recycling companies in the Northeast were receiving such massive quantities of paper that a recycled paper glut resulted. Private companies began charging local governments for accepting their waste paper for recycling.

Negative Attitudes about Recycled Materials

Several studies have reported that the negative attitude by consumers toward recycled materials was a critical problem. In 1978, a survey of recycling activities and householder attitudes was conducted in the City of Norwich, a United Kingdom community (O'Riordan and Turner, 1979). The study's principal purposes were to identify the operation of the local market in secondary materials and to assess householder attitudes toward new recycling ventures and the use of recycled paper products. The survey consisted of a household survey of consumer attitudes and behavior toward waste paper and glass bottle recycling, and an investigation of waste material flows in Norwich's secondary markets.

Important findings from the United Kingdom community study concerning the use of recycled products included:

1. Recycled paper was identified with inferior quality.

2. If recycled paper products were to be used extensively in place of virgin paper products, then either the products must be comparable in color and texture or the consuming public would need to alter its view about the value of recycled papers.

3. Almost everyone thought that used paper was valuable, so there was a willingness to see it recycled.

4. A high positive motivation existed to recycle paper and a fairly strong feeling existed that recycled paper would be acceptable.

5. Differences were revealed in attitudes toward the advantages and drawbacks of recycling held by those who recycled paper and those who did not. Those who consistently recycled believed more than those who did not that recycling would reduce import costs and improve environmental quality.

6. The group that recycled their waste paper also was less inclined to believe that recycled paper would lower the cost of paper, save energy, take too much effort, result in too much waste paper or produce a poorer quality paper than those who did not recycle their used paper.

7. There was a willingness to respond to an initiative to recycle glass bottles, with strong motivations based on the savings of litter and raw materials.

A report from the Michigan Recycling Promotion Advisory Committee (1988) revealed that there was not a strong demand for recycled products. The report indicated three reasons: (1) Some people still believed that products made from waste could not perform as well as those made from new material; (2) Despite considerable improvements in recycling technology over the last two decades, people having negative experiences with recycled products in the past were unwilling to try those products from recycled materials being made today; (3) Some people purchased recycled goods only if the initial cost was significantly less than the cost of similar products made from new materials.

Similar findings were indicated by Treadaway (1989) in

his recent article, "Is Recycling The Answer?". Treadaway mentioned that markets for most recycled products were slow to develop because of a persisting bias against products with some recycled content in favor of those products made only from new materials. Treadaway cited a National Association of Towns and Townships report (Treadaway, 1989, p. 44) which stated: "Newsprint competes with pulp wood, scrap iron with iron ore. Manufacturers often do not take advantage of available recycled materials which may require changes in processing and quality control and additional collection and transportation costs. Manufacturers often rely on single or established sources to deal with new, unproven suppliers. Businesses also cited buyer resistance to products with recycled content as a barrier to greater demand for reclaimed materials..." The report also pointed out "..recycled products experience some of the same discrimination as generic vitamins which a chemist can't distinguish from the name brand, but a significant number of buyers believe they can..." (Treadaway, 1989, p. 44).

Kashmanian, Ferrand, Hurst, and Kuusinen (1990) pointed out the common belief that recycled materials are inferior to virgin materials. They also mentioned that manufacturers, marketers, and retailers were challenged to help overcome this perception and educate consumers on the need to purchase products and packaging made with recycled materials. They suggested that without a recycling infrastructure in place,

including long-term agreements for the sale and use of these materials, recyclable goods will not be recycled.

The Willingness to Accept Products Containing Recycled Materials

Despite the negative image of recycled products, the public seems willing to focus less on environmental regulation and more on purchasing behavior in the 1990s. Several studies show that consumers are willing to pay more for recycled products to help improve the environment. A recent Gallup poll (1990) reported that consumers would consider buying products in recycled paperboard packaging. Fifty-four percent reported they were "very interested" in packaging containing recycled materials. Forty-nine percent said they were more inclined to purchase a product whose package was made from waste paper if it was easily identified by a recycling symbol (Duff, 1990, p. 16).

In a survey conducted by The Michael Paters Group, 89 percent of the respondents said they were concerned about the environmental impact of products they purchased, and 78 percent reported they were willing to pay extra for goods in recyclable or biodegradable packages (Duff, 1990, p. 16). Stuler (1990, p. 41) stated that consumers were willing to pay up to 5 percent more for recycled, recyclable or degradable packages.

A recent study, entitled "The Environment: Public Attitudes and Individual Behavior", was conducted by the Roper

Organization in February 1990. A nationwide cross section of 1413 men and women, 18 years of age and over, was surveyed for the study in face-to-face interviews. Some important findings from the survey included:

1. About fifty percent of all consumers have seen labels touting the environmental friendliness of certain products; about 25 percent have seen advertisements of this nature.

2. Nearly one-third of the respondents bought a product specifically because of "green" advertising or labeling.

3. On average, the consumers were willing to pay six percent more for recycled paper products. However, about one-third of all consumers would not accept a price increase for recycled or "green" products.

4. Seventy eight percent of the respondents thought the government needed to make a major effort to improve the environment.

5. Income, education and gender correlated strongly with environmental activism. The more affluent, the better educated, and more women than men were likely to be involved.

Summary

In general, past studies show the following implications about recycling and consumer attitudes about recycled products:

1. Recycling has became the most widespread of activities performed by individuals to improve the environment since the

early 1980s.

2. Successful recycling programs have produced gluts of materials in the late 1980s. The supply-demand imbalance of recycled materials is a critical problem to be solved.

3. Many consumers believe products containing recycled materials are of lower quality than those made from new materials.

4. Many consumers are willing to accept and purchase products containing recycled materials. Some consumers are aware that markets are important to the success of recycling.

5. A substantial portion of the consumers are willing to pay more for the products containing recycled materials than for similar products made from new materials.

CHAPTER III

RESEARCH DESIGN AND METHODOLOGY

Purpose of Research

Attitude research studies usually focus on one of two basic purposes: (1) description, or (2) explanation. The descriptive study provides a description of the feelings of some segment of the public. It is the typical public opinion poll, describing the views of the population from which the sample of the respondents is drawn. On the other hand, an explanatory study is conducted chiefly with the development of theoretical statements about relationships and processes. It attempts to go to the root of the problem and offer explanations for existing attitudes.

The purpose of this study is to learn more about consumer attitudes and actions concerning products made with recycled materials. It seeks to explore consumers' views, and analyze the significance of those views. The findings derived from this study are expected to provide insights into the nature and importance of consumer attitudes and behaviors about acceptance of products containing recycled materials. Consequently, the researcher will attempt to combine both descriptive and explanatory elements within the framework of this study.

Research Questions

To achieve the research objectives, the following questions will need to be answered:

1. Do consumers recognize that waste disposal is a problem in society? And, do people realize that recycling can diminish or retard the waste disposal problem?

2. Do consumers realize that many products can be made partially or entirely from recycled materials?

3. How do consumers feel about products containing recycled materials? Have consumers used products containing recycled materials?

4. Do consumers think recycled products are the same in quality as products made from new materials?

5. How do consumer attitudes differ toward various types of products containing recycled materials?

6. Will consumers use various products containing recycled materials? If so, which products and under what conditions?

7. Are consumers willing to pay more for products containing recycled materials? How much more would they be willing to pay and under what conditions of price and quality?

Research Hypotheses

Hypotheses are crucial because they are the working tools in the development and testing of theories. Hypotheses also help direct which relationships are to be investigated and which data are to be sought and used in testing those relationships. Through the use of hypotheses and related tests, relationships can be evaluated and the nature of the relationship can be assessed regardless of personal values and biases.

The following hypotheses will help guide this research:

1. There is a positive relationship between environmental awareness and acceptance of products containing recycled materials.

2. Education level and income level of consumers will be positively correlated with positive attitudes toward consumption of products containing recycled materials.

3. Consumers' attitudes about product acceptance will differ for different types of recycled products.

4. The more expensive the recycled product relative to similar products made from new materials, the lower the rate of acceptance of that product.

5. There is a positive relationship between environmental awareness and the willingness to pay more for products containing recycled materials.

6. There is a positive relationship among education

level, income level and the willingness to pay more for products containing recycled materials.

Methodology of Data Collection

Telephone Survey Method

Surveys are chiefly used in studies for which individuals are the units of analysis. Surveys are excellent tools for measuring attitudes and orientations in a large population (Babbie, 1986, pp. 203-204).

In general, there are three survey methods commonly used for collecting data from individuals: face-to-face interviews, mailed questionnaires, and telephone interviews. A statewide telephone survey of Michigan consumers was used in this study. The telephone interview was selected over the other two methods for the following reasons:

1. The most significant advantage was that the telephone interviews, as organized and conducted, provided quality control over the entire data collection process, including sampling, respondent selection, and questionnaire design and use. Studies showed that interviewing by telephone, when properly organized, closely approached the level of unbiased standardization that is the goal of all good surveys (Larvakas, 1987, pp. 11-12, Babbie, 1986, p. 230).

2. From a cost standpoint, a telephone survey collects the data required far more efficiently than face-to-face interviews.

3. Time saving was another major advantage of the telephone survey. Data are gathered and entered into the computer at the time of the telephone interview. Thus when the several weeks of interviewing are complete the data entry is also completed and data are ready for analysis. Use of the face-to-face interview technique might take a month or more with a period of data entry to follow. Mail surveys with follow-up mailings could take an even longer period without the guarantee of a satisfactory response rate.

However, telephone interviews are constrained by limitations on the complexity and length of the interview. The average person will not participate in a telephone survey for longer than 30 minutes. Face-to-face interviews and mail questionnaires do not seem to be as severely limited. Similarly, complicated questions may be extremely difficult to use in telephone surveys whereas such items may work quite well in both face-to-face interviews and mail questionnaires. These limitations in size of survey and complexity of questions were considered and minimized as much as possible in the process of designing the telephone questionnaire used in this study.

Sampling Procedure

Sampling Technique. In order to obtain a cross-section sample of Michigan household telephone numbers, the survey sample in this study was ordered from Survey Sampling, Inc., a Connecticut firm that specializes in household sampling

techniques. Survey Sampling Inc. has employed Random Digit Dialing (RDD) to draw the samples. RDD procedures were developed as a reaction to the problems of undercoverage in telephone directories. RDD procedures not only provide for the inclusion of unlisted telephone numbers, they also eliminate the need to list or enumerate units prior to drawing a sample.

The characteristics of the samples drawn for this study through use of the RDD technique are as follows:

1. The method produced epsem samples in which all telephone households in the geographic sampling frame are given, within the limits of available data, an equal probability of selection.

2. The method produced element samples rather than clustered samples. This means the company provided various sample sets that could be combined and used.

3. The samples were stratified to all counties in the geographic frame so that the number of telephone households drawn from a county for the sample was proportional to that county's share of telephone households.

4. Samples were drawn systematically from an array of counties and an array of working telephone blocks within each county.

5. The method employed double sampling for the pre-test to ensure no business numbers and no non-use numbers were included (additional detail about the sampling process is

provided in the next section).

Sample Selection Process. Before any random sample could be drawn, Survey Sampling Inc. conducted a "frame" -- a set of operations permitting selection of specific elements of the population with known probability. To eliminate non-residential exchanges from the frame, a special proprietary data file was developed to include all apparent residential listings from every known telephone directory in the state of Michigan. After names, street addresses, and telephone numbers were transferred to computer, they were geographically coded so that the correct mailing post office and ZIP code could be added to each record. In urbanized areas, the addresses were also related to census tracts, block groups or enumeration districts. Survey Sampling Inc. developed a specialized computer program which performs the following operations in building the phone file:

1. Added the appropriate area code and time zone to each telephone number.

2. Sorted all numbers to area code, exchange, and phone number sequence.

3. Tabulated the counties of residence for all listed residential numbers of each exchange.

4. Tabulated which ZIP codes were associated with each exchange and the number of listings in each ZIP.

5. Counted the number of listings in each exchange.

6. Identified the "working blocks" of each exchange,

where a block was a group of 100 contiguous number (e.g. 1800-1899) and a working block was one which contained three or more listed residential numbers.

In order to make sure the telephone numbers provided pertained only to households, the Center for Survey Research, Michigan State University conducted a "pretest" sample two times to see if any business numbers or non-use numbers were included in the sample listing from Survey Sampling Inc.

Data Collection Process

Questionnaire Design. The questionnaire used for this study requested the respondent's views on such matters as:

1. The importance of waste disposal;

2. Community efforts in recycling waste materials;

3. The respondent's own efforts to deal with the waste problem;

4. Actions the respondent might be willing to take;

5. Under what conditions the respondent would purchase products or packaging made from recycled materials;

6. How relative price and quality of products (recycled vs. new) would influence the respondent's decision; and

7. Related ideas about use of recycled materials.

Direct-questioning and various scaling techniques were used in the questionnaire. The scaling techniques included Likert procedures and the Guttman scales. The questionnaire was organized as follows:

Section A: General questions: about waste disposal and

recycling.

Section B: Questions about recycling of particular kinds of materials.

Section C: Questions about recycling efforts in which the respondent might be involved.

Section D: Questions about what the respondent might do if curbside pick-up of recyclable materials were available in the community.

Section E: Questions about products and packaging made from recycled materials.

Section F: Questions about the importance of price and quality in respondent's decisions to purchase products made from new materials or from recycled materials.

Section G: Questions about the respondent's impressions of the quality of products containing various kinds of recycled materials.

Section H: Questions about the quality of particular types of products that might be made from recycled materials.

Section I: Questions about concerns for sanitation or cleanliness of types of food packaging that might be made from recycled materials.

Section J: Questions about the concerns for the sanitation or cleanliness of types of non-food packaging that might be made from recycled materials.

Section K: Questions about costs of products or packaging and willingness of the consumers to pay.

Section L: Questions concerning assistance that levels of government might provide manufacturers to produce packaging or products made from recycled materials.

Section M: Question about the sources of respondents use to obtain information about the quality and safety of products.

Section N: Questions about the respondent's background information.

Center for Survey Research. The Michigan State University Center for Survey Research agreed to conduct the telephone survey and related data collection. It began formatting the telephone questionnaire (Appendix B) in November, 1990, after the researcher and faculty advisors finished the draft questionnaire.

Pretest. A pretest was conducted prior to the actual survey to evaluate overall reliability and validity of the completed questionnaire. On December 6 and 7, 1990. The Survey Research Center conducted 6 pretest interviews. Feedback from the pretest was utilized in the revision of the questionnaire used in this study.

Training. The purpose of training was to provide interviewers with enough background information so they were well-prepared to begin actual interviewing. The training

session was held on December 6. The researcher was the trainer. Nine interviewers, two managers, and one supervisor from the Center for Survey Research participated in the training session.

The training session was structured as follows:

1. An explanation of the survey's purposes was provided. It helped interviewers understand the importance of the survey.

2. The researcher proceeded through the questionnaire item by item, reading each question in its entirety and providing examples to all interviewers about the questionnaire and its use.

Interviews and Data Collection

Telephone interviews were conducted from the Center for Survey Research, Michigan State University during the period from December 7, 1990, to January 20, 1991. Experienced interviewers were assigned by the Center for Survey Research and were monitored throughout the interviewing period.

As calls were made to households, primary shoppers 18 years of age or over, were selected by interviewers within the chosen households. Interviews with the primary shopper lasted, on average, about 25 minutes.

The Center for Survey Research utilized the Computer-Assisted Telephone Interviewing (CATI) technique to record the responses. Under the CATI system, all interviewing was done at a Cathode Ray Tube (CRT) terminal where the

interviewer keyed respondents' answers into a CRT. Each interviewer sat at a table in front of a CRT console with a television-like screen displaying questions, answers, and directions for conducting the interview. The CRT was connected to a computer that acted as the survey processor. A bank of telephone numbers were programmed into the survey processor. The interviewer only signaled when ready to begin interviewing, and the first telephone number appeared before her on the screen. If an interviewer keyed in an inappropriate response, an error message automatically appeared on the screen and corrective measures were immediately implemented. When the correct response was entered, the computer determined which question should be asked next. The next question would not appear until the previous question had been answered with an appropriate response category.

If a particular telephone number did not result in an answer, the number was returned to the computer bank for later use. In this study, 23.6 percent of those completing interviews were reached on the first call, 19.6 percent on the second call, and another 19.6 percent on the third call. The other 37.2 percent required up to 21 more calls to complete the interview. The average number of calls per party required to complete an interview was 10.5.

Response Rate

The response rate is often calculated in one of two ways for telephone surveys. One rate is based on the number of completions compared to the number of potential respondents who may or may not have been contacted for a response, but who are eligible. Refusals, partial completions, illness or disability, and those unable to be contacted after several times are included. Another rate compares the number of interviews completed in full to the completions plus refusals and partial completions less all uncompleted interviews, except for refusals, regardless of cause (Frey, 1989, pp. 49-50).

In this study, the interviewers used 380 valid numbers. Among the 380 cases (eligible telephone numbers), 224 respondents completed the interview, 122 refused to participate in the interview, 4 were unable to participate in the interview, 27 were unanswered telephone numbers, and 3 were problem phones (bad connection). Because the first rate, discussed above, demonstrated how well a survey had performed in making contact with all possible respondents, and it was the preferred rate for reporting results, the researcher used the formula to calculate the response rate. According to the formula, the response rate was 59 percent. Studies showed that rates of 40-50 percent for telephone surveys could be expected with the first method of calculation (Frey, 1989, p. 50). Therefore, the response rate in this study was considered

high. The 224 completed sample size resulted in a 95 percent confidence level of +/- 6 percent.

Studies also indicated that the average refusal rate could be expected to be 20-25 percent for telephone surveys. The 32 percent refusal rate in this study appears higher than average. A major reason was probably due to the timing of the study, which was around the Christmas-New Year's season. This may have contributed to respondents' unwillingness to take the time to be interviewed. It is important to note that this study did not result in partial interviews. Each person who was contacted and agreed to participate in the interview, completed it. The absence of partial interviews appears to have affected both the computed rate of response and the computed rate of refusal, making both somewhat higher than would be the case if partial interviews had existed.

Sample Distribution

Among the 224 respondents, the distribution was as follows: (1) 110 respondents (49.1 percent) was distributed in Eastern Michigan-Detroit, Flint, and Ann Arbor area, (2) 48 respondents (21.4 percent) was distributed in the areas of Mid-Michigan-Lansing, Saginaw, Gaylord, and Alpena, (3) 57 respondents (25.4 percent) was distributed in Western Michigan-Grand Rapids, Kalamazoo, Cadillac, Petoskey area, and (4) 9 respondents (4.0 percent) was distributed in the area of Upper Peninsula.

Compared the sample distribution with the population

distribution in Michigan by county, the data showed a small difference between the state and this study. According to the 1980 census data, the population distribution in Michigan was as follows: (1) 57.6 percent of total population was distributed in the area of Eastern Michigan-Detroit, Flint, and Ann Arbor, (2) 15.2 percent of total population was distributed in the area of Mid-Michigan-Lansing, Saginaw, Gaylord, and Alpena, (3) 23.8 percent of total population was distributed in Western Michigan-Grand Rapids, Kalamazoo, cadillac, Petoskey area, and (4) 3.4 percent of total population distributed in the area of Upper Peninsula. Comparison of the data shows that the sample selected for this study was fairly representative of the households in Michigan.

Recording of Data

Data from telephone interviews were entered into SPSSx Information Analysis Computer System for analysis. The percentages, means, medians, correlational measures, analysis of variance, t-test, and other statistics were computed to test the hypotheses and evaluate the relationships. The data results were supplemented with other appropriate secondary materials in developing the findings and related explanations.

CHAPTER IV

ANALYSIS AND FINDINGS

This chapter consists of three sections. The first section presents the frequencies of the survey results. It includes ten sub-sections: (1) personal characteristics, (2) attitudes about waste disposal, (3) familiarity with recycling, (4) recycling efforts, (5) the importance of price and quality in consumers' decisions to purchase products made from recycled materials, (6) attitude about quality of recycled materials, (7) concerns about sanitation or cleanliness of packaging made with recycled materials, (8) willingness to pay more for recycled products and packaging, (9) attitudes about government assistance for recycled products and packaging, and (10) primary source of information about quality and safety of products.

The second section addresses the hypotheses testing. Various statistical methods were used to test the hypotheses. The statistical methods include: correlation analysis, analysis of variance, reliability, t-test, crosstab, and frequency.

The third section presents the analysis of relationships between demographic variables and responses relative to consumer attitudes about recycling and recycled materials.

Presentation of Frequencies

Personal Characteristics

The personal data were analyzed to obtain a profile of the sample population of 224 consumers participating in the study. The variables include: sex, age, community, education level, employment situation, and household income (Table 4.1).

The survey showed that over three quarters of the respondents were female. Nearly 68 percent of the respondents were 18 to 49 years old. The remaining 32 percent were 50 years and older.

Survey data on formal education were classified as: (1) 6th grade or less, (2) 7th to 12th grade, (3) completed high school or GED, (4) some college, trade or vocational school, (5) completed college, and (6) advanced degree. About 32 percent of the respondents indicated that they had "some college, trade or vocational school", with another 23 percent saying they had a high school diploma or GED.

Nearly 42 percent of the respondents were employed full time, while 14 percent indicated they were employed part time. Some 18 percent of the respondents were full-time homemakers. Approximately 16 percent of the respondents were "retired". Half of the respondents reported a total household income of $15,000 to $44,999. Another 16 percent of the respondents indicated the total household income was under $15,000.

The community is reported here in three categories: (1) city, (2) suburb, and (3) rural. About 41 percent of the

respondents said they live in a city, while nearly 34 percent said they live in a rural community.

Compared to the profile of State of Michigan, the data showed there were small difference between the state and this study for the variables of age, education level, and community. The 1980 Census data indicated that (1) about 80 percent of householders, in State of Michigan, were aged between 25 years old to 64 years old, compared to 74 percent of the respondents in this study, (2) 75 percent of Michigan residents, aged 18 years or older, were at least high school graduates, compared to 80 percent of the respondents in this study, and (3) 71 percent of the Michigan residents live in a city or suburb, compared to 65 percent of this study. A comparison of the statistical data for Michigan and the personal data from respondents indicates the primary shoppers in this study should be quite representative of primary shoppers in the households of Michigan.

Table 4.1: Personal Characteristics of Respondents

Variable	Category	Number	Percent
Sex	Male	51	22.8
	Female	173	77.2
Age	18-24 years	25	11.2
	25-34 years	53	23.7
	35-49 years	73	32.6
	50-64 years	39	17.4
	65 years or older	34	15.2
Level of Education	6th grade or less	1	0.4
	7th-12th grade	44	19.6
	Complete high school or GED	51	22.8
	Some college, trade or vocational school	72	32.1
	Completed college	44	19.6
	Advanced Degree	12	5.4
Employment Situation	Employed full-time	93	41.5
	Employed part-time	31	13.8
	Full-time homemaker	41	18.3
	Unemployed	13	5.8
	Retired	36	16.1
	Full-time student	6	2.7
	Other	4	1.8
Community	City	91	40.6
	Suburb	54	24.1
	Rural Area	75	33.5
	Don't know, no response	4	1.8
Household Income	Less than $15,000	35	15.6
	$15,000 to $29,999	46	20.5
	$30,000 to $44,999	62	27.7
	$45,000 to $59,999	31	13.8
	$60,000 to $74,999	14	6.3
	$75,000 or over	18	8.0
	Don't know, no response	18	8.0

Attitudes About Waste Disposal

Respondents were asked how important the disposal of wastes was when compared to other environmental issues. The reply given by 95 percent of the respondents was that disposal of wastes was "most important" or "one of the more important" (Table 4.2).

Table 4.2: Importance of Waste Disposal to Respondents

Degree of Importance	Number	Percent
Most important	70	31.3
One of the more important	142	63.4
One of the least important	9	4.0
Least important	3	1.3
Total respondents	224	100.0

The respondents were asked how concerned they were about waste disposal as a local issue. Nearly 93 percent of the respondents said "very concerned" or "somewhat concerned" (Table 4.3).

Table 4.3: Concerns about Waste Disposal as a Local Issue

Degree of Concern	Number	Percent
Very concerned	106	47.3
Somewhat concerned	101	45.1
Not very concerned	11	4.9
Not concerned at all	5	2.2
Don't know, no answer	1	0.5
Total respondents	224	100.0

Familiarity with Recycling

Approximately 82 percent of the respondents indicated they were "very familiar" or "somewhat familiar" with recycling (Table 4.4). And, only a very small percentage (3.1 percent) indicated they were not familiar at all with recycling.

Table 4.4: Respondents' Familiarity with Recycling

Degree of Familiarity	Number	Percent
Very familiar	56	25.0
Somewhat familiar	127	56.7
Not very familiar	34	15.2
Not familiar at all	7	3.1
Total respondents	224	100.0

Another measure of respondents' familiarity with recycling as well as an indication of the community recycling environment is the nature of community recycling underway. The majority (71 percent) of the respondents reported their communities have some recycling efforts under way (Table 4.5). Among respondents, 60 percent said their community has voluntary drop-off points for recyclable materials. Nearly 17 percent of the respondents pointed out that their communities have curbside pick-up of recyclable materials, while 9 percent said their community has a recycling plant.

Table 4.5: Recycling Efforts Underway in Respondents' Communities

Types of Community Recycling Efforts	Number	Percent
One or more community recycling efforts underway	160	71.0
Voluntary drops-off points of recyclable materials	135	60.3
Regular curbside pick-up of recyclable materials	37	16.5
A recycling plant	20	8.9
Any other facilities or programs for recycling	22	9.8
No community recycling efforts, don't know or no response	64	28.6
Total respondents reporting	224	100.0

One survey question asked respondents was whether they heard or read about the possibility of recycling particular kinds of materials during the past 12 months. There were 14 recyclable items listed for the respondents' consideration in making their responses.

According to the survey results, the most "heard or read" item for recycling was newspapers, with 92 percent of respondents citing it. The least "heard or read" item was "plastic bags used to cover dry cleaning" (Table 4.6).

Since there were 205 of 224 respondents who read or heard about recycling of newspapers, and another 180 who read or heard about recycling aluminum cans, or glass and plastic bottles with deposits, nearly all respondents were exposed to both the idea of recycling and some specifics of recycling.

Table 4.6: Heard or Read about the Possibility of Recycling During the Past 12 Months

Recyclable Materials	Number	Percent
Newspapers	205	91.5
Aluminum cans, or glass and plastic bottles with deposits	180	80.4
Other plastic containers with no deposits	155	69.2
Motor oil	153	68.3
Other glass containers with no deposits	143	63.8
Other plastic bags	139	62.1
Other cans with no deposits	134	59.8
Scrap metals	130	58.0
Auto batteries	121	54.0
Paperboards or cardboard boxes	118	52.7
Magazines, catalogues, and other color papers	104	46.4
Tires	89	39.7
Household batteries	73	32.6
Plastics bags used to cover dry cleaning	59	26.3
Total respondents reporting	224	100.0

Recycling Efforts

In order to understand how actively the respondents were involved in recycling, one question was asked whether they separate recyclable materials from their garbage. Of the 224 respondents, 214, or nearly 96 percent, reported that they were involved in some forms of recycling. In other words, they recycled one or more items (Table 4.7).

Table 4.7: Participation in Separation of Recyclable Materials

Nature of Participation	Number	Percent
Separate one to five items from garbage	113	50.4
Separate six to ten items from garbage	88	39.3
Separate more than ten items from garbage	13	5.8
Did not separate items from garbage	10	4.5
Total respondents	224	100.0

Respondents were asked if they separated from garbage any of 13 items that could be recycled. The survey revealed the top three items were: aluminum cans, or glass and plastic bottles with deposits, newspapers, and motor oil. Some 88 percent of the respondents separated aluminum cans, or glass and plastic bottles for returning and recycling. More than two-thirds (68 percent) separated newspapers for recycling and over 43 percent of the respondents separated motor oil for

recycling. The least frequently separated items were: scrap metals, paperboards or cardboard boxes, and household batteries (Table 4.8).

Table 4.8: Separation of Recyclable Materials from Garbage

Recyclable Materials	Number	Percent
Aluminum cans, or glass and plastic bottles with deposits	198	88.4
Newspapers	152	67.9
Motor oil	97	43.3
Magazines, catalogues, and other color papers	89	39.7
Plastic bags	86	38.4
Auto batteries	85	37.9
Other glass containers with no deposits	84	37.5
Other plastic containers with no deposits	84	37.5
Other cans with no deposits	80	35.7
Tires	69	30.8
Scrap metals	61	27.0
Paperboards or cardboard boxes	54	24.1
Household batteries	48	21.4
Total respondents reporting	224	100.0

Another question asked respondents was their willingness to separate recyclable items from their garbage if curbside pick-up were available. Over 95 percent of the respondents

said they would be willing to separate plastic containers, cans and glass containers with no deposits, plus plastic bags, newspaper, and magazines, catalogues and other color papers if provided curbside pick-up. The survey also showed over 87 percent of the respondents were willing to separate every kind of item from their garbage if curbside pick-up were available in their community (Table 4.9).

Table 4.9: Willingness to Separate Recyclable Materials If Curbside Pick-up Available

Recyclable Materials	Number	Percent
Plastic containers with no deposits	221	98.7
Cans with no deposits	219	97.8
Glass containers with no deposits	219	97.8
Plastic bags	216	96.4
Newspapers	216	96.4
Magazines, catalogues, and other color papers	216	96.4
Paperboards or cardboard boxes	211	94.2
Household batteries	209	93.3
Scrap metals	201	89.7
Auto batteries	200	89.3
Plastic food wraps or sandwich bags	200	89.3
Motor oil	195	87.1
Tires	195	87.1
Total respondents reporting	224	100.0

Consumers Recent Actions toward Products and Packaging Made from Recycled Materials

Among the 224 consumers participating in this survey, 71 percent indicated that at least "sometimes" they looked to see whether or not the products were made with recycled materials when selecting products (Table 4.10). About two-thirds of the respondents said at least "sometimes" they looked to see whether or not the packaging was made with recycled materials (Table 4.11). Those who "never" look to see if products or packaging are made from recycled materials outnumber those who "always" look by about four to one.

Table 4.10: Frequency with which Respondents Look to See If Products They Are Selecting Are Made from Recycled Materials

How Often Respondents Looked	Number	Percent
Always	15	6.7
Frequently	56	25.0
Sometimes	89	39.7
Never	64	28.6
Total respondents	224	100.0

Table 4.11: Frequency with which Respondents Look to See If Packaging They Are Selecting Is Made from Recycled Materials

How Often Respondents Looked	Number	Percent
Always	17	7.6
Frequently	29	12.9
Sometimes	101	45.1
Never	77	34.4
Total respondents	224	100.0

Nearly 86 percent of the consumers have used products made from recycled materials, while only about 8 percent of the consumers haven't used products made from recycled materials (Table 4.12). Those who indicated they have not used products made from recycled materials were asked why they haven't used them. Their reasons included: lack information, never looked for them, inferior quality, prefer new product, and not available in store.

Table 4.12: Proportion of Respondents Who Have Used Products Made from Recycled Materials

Nature of Use	Number	Percent
Have used products made of recycled materials	192	85.7
Have not used products made of recycled materials	17	7.6
Don't know	15	6.7
Total respondents	224	100.0

Influence of Price and Quality Differentiation on Respondent Decisions to Choose Recycled Products Over New Products

A series of questions were asked respondents to determine the importance of price and quality in their decisions to purchase products made from new materials or from recycled materials. In designing these questions, price differences presented for products from recycled materials were (1) 10 percent lower, (2) the same, and (3) 10 percent higher than products made from new materials. The quality differences presented for products from recycled materials were (1) 10 percent higher, (2) the same, and (3) 10 percent lower than products made from new materials. By combining the two sets of choices, respondents were given 9 questions. And, they were asked to indicated if they would (1) definitely buy recycled products, (2) probably buy recycled products, (3) definitely buy new products, or (4) probably buy new products.

Response to Price Changes. The respondents indicated that if the quality was the same for both products and if the price were the same, 51 percent would "definitely buy" the recycled product and an additional 33 percent would "probably buy" the recycled products--a total of 84 percent (Table 4.13). If these is no difference in quality but if the price of the recycled product is 10 percent more, those reporting they would "definitely buy" drops to 8 percent and those reporting they would "probably buy" increases to 37 percent--a total of 45 percent. However, if quality were the same, but the price of the recycled product was 10 percent less, the respondents reporting they would "definitely buy" it increases to 60 percent and those reporting they would "probably buy" it were 32 percent--a total of 92 percent. One can conclude that the respondents were highly responsive to differences in the price of products.

Response to Quality Change. Recall that respondents indicated that if quality and price of recycled products and new products were the same, 51 percent would "definitely buy" the recycled product and an additional 33 percent would "probably buy" it--a total 84 of percent. If the price were the same, but the quality of the recycled product was 10 percent less, those reporting they would "definitely buy" drops to 13 percent and those reporting they would "probably buy" increases to 39 percent--a total of 52 percent. However, if the price were the same and the quality of the recycled

products was 10 percent higher, the respondents reporting they would "definitely buy" it increases to 58 percent and those reporting they would "probably buy" it were 32 percent--a total of 90 percent (Table 4.13). Given this response, one can conclude that respondents were highly responsive to differences in the quality of products.

Responses to Simultaneous Changes in Price and Quality. Some 69 percent of the respondents indicated they would "definitely buy" a recycled product if it was 10 percent better in quality and 10 percent lower in price, and an additional 24 percent said they would "probably buy" it--a total of 93 percent. However, when the quality, as well as price, was reduced by 10 percent, the respondents who would "definitely buy" dropped sharply to 19 percent, while those who would "probably buy" it rose to 58 percent--a total of 77 percent. If the quality was 10 percent better and price were increased by 10 percent, fewer respondents would chose the recycled product--a total of 61 percent. And, if the quality of the recycled product was 10 percent lower than the new product and the price was 10 percent higher than the new product, less than 25 percent of the respondents would chose the recycled product (Table 4.13). It appears that if either price or quality of the recycled product is unfavorable, a compensating change by the other will not fully restore the loss in respondent selection.

Table 4.13: Choices of Recycled Products vs. New Products Under Alternative Conditions of Price and Quality 1)

Quality	Price	Definitely Buy Recycled Products	Probably Buy Recycled Products	Definitely Buy New Products	Probably Buy New Products
		Percent	Percent	Percent	Percent
Same	10% lower	60.1	32.3	4.0	1.8
Same	Same	50.9	33.3	6.8	3.2
Same	10% more	8.1	36.5	38.3	13.1
10% better	Same	58.1	32.4	4.1	2.7
Same	Same	50.9	33.3	6.8	3.2
10% lower	Same	13.0	38.6	30.9	10.8
10% better	10% lower	69.1	24.2	2.7	1.8
10% lower	10% lower	19.4	58.1	14.9	3.6
10% better	10% more	16.7	44.6	25.2	6.8
10% lower	10% more	4.0	21.5	44.4	22.0

1) There were a total of 224 respondents. While at least 92 percent of the respondents answered each question on price and quality conditions, some respondents did not know how they would respond or chose not to answer. Therefore, the percentages for each row will total to less than 100 percent.

Attitude About Quality of Recycled Materials and Products

The researcher asked respondents to rate the quality of various kinds of recycled materials. Five recycled materials were listed: 1) aluminum, 2) glass, 3) paper, 4) plastic, and 5) steel. Over 84 percent of the respondents reported that recycled aluminum, glass, plastic, and steel were either "about the same" or "higher quality" than new materials. Recycled Paper was the least rated material with 73 percent reporting it was the same or higher quality than products made with new materials (Table 4.14).

Those who indicated they thought products made from recycled materials were of lower quality than products made from new materials were asked why they believed it. Their reasons included: used materials are inferior, flaws/defects, not as strong as new products, poor color quality, poor appearance, poor quality of ink, and prefer new products.

Table 4.14: Views on Quality of Products from Recycled Materials Compared to Products from New Materials

Recycled Materials	Respondents Reporting Products from Recycled Materials as the Same or Higher Quality than Products from New Materials					
	About the Same Quality		Higher Quality		Combination Same and Higher Quality	
	Number	Percent	Number	Percent	Number	Percent
Glass	198	88.4	2	0.9	200	89.3
Aluminum	190	84.8	2	0.9	192	85.7
Plastic	188	84.7	3	1.4	191	85.3
Steel	187	84.6	2	0.9	189	84.4
Paper	160	71.4	3	1.3	163	72.8
Total Respondents Reporting	224	100.0	224	100.0	224	100.0

Another question asked respondents was, "compared to those products made from all new materials, how would you rate the quality of particular types of products made from recycled materials?" In general, nearly 87 percent of the respondents said the quality was "about the same" (Table 4.15).

Table 4.15: Views on of Quality of General Products Made from Recycled Materials Compared to Those Made from New Materials

Respondents' Choice	Number	Percent
About the same	194	86.6
Lower quality	14	6.3
Higher quality	3	1.3
Don't know	10	4.5
Refused/no response	3	1.3
Total Respondents	224	100.0

Those who rated the products made from recycled materials as generally lower, generally higher in quality than products made from new materials, and those who answered "don't know" were asked to compare 11 listed specific products. The group, some 27 persons, constituted only 12 percent of the total respondents. Their answers are arrayed by the 11 specific products in Table 4.16.

Table 4.16: Views on Quality of Specific Products Made from Recycled Materials with Compared to Those Made from New Materials--Subgroup of 27 Respondents 1)

Specific Products	Respondents Reporting Same or Higher Quality for Recycled Materials	
	Number	Percent
Greeting cards	17	7.6
Glassware	14	6.3
Writing paper	12	5.4
Plastic benches, picnic tables, tables and chairs	12	5.4
napkins, tissue paper, and paper towels	10	4.5
Office paper goods	8	3.6
Plastic boards, planks, posts, and fences	8	3.6
Carpeting	8	3.6
Toilet paper	6	2.7
Plastic floor coverings, runners and plastic sheeting	6	2.7
Household construction materials	5	2.2
Total respondents reporting	224	100.0

1) There were a total of 224 respondents. While 194 respondents indicated recycled products were generally about the same as products made from new materials, 3 respondents refused to answer the question. Therefore, they were not required to answer for the specific products.

The Concerns about the Sanitation or Cleanliness of Packaging Made with Recycled Materials

The researcher wanted to know how concerned the respondents were about the sanitation or cleanliness of food packaging and non-food packaging made with recycled materials. Respondents were asked about their concern for food packaging as a group, as well as their concern for non-food packaging as a group, when made with recycled materials.

In response to the question on food packaging as a group, approximately 18 percent of the respondents indicated that they generally were "not concerned at all" about the sanitation or cleanliness of food packaging made with recycled materials (Table 4.17). A total of 64 percent of the respondents indicated either they were very concerned or somewhat concerned about sanitation and cleanliness of food packaging made from recycled materials.

Table 4.17: Views on Sanitation or Cleanliness of General Food Packaging Made from Recycled Materials

Respondents' Choice	Number	Percent
Very concerned	97	43.3
Somewhat concerned	47	21.0
Not very concerned	37	16.5
Not concerned at all	40	17.9
Don't know	3	1.3
Total respondents	224	100.0

Those respondents who indicated that they generally were "very concerned", "somewhat concerned", and "not very concerned" also were asked to respond to their degree of concern about eight listed types of food packaging. Among the eight listed types of food packaging, the highest level of concern was reported for "cereal packages and other paper food packages" with the least concern for glass beverage bottles. However, the magnitude of the concern was fairly uniform across the 8 types of food packaging. Those who were "very concerned" or "somewhat concerned" about sanitation and cleanliness ranged from a high of 64 percent for cereal packages and other paper food packages to a low of 52 percent for glass beverage bottles (Table 4.18).

Table 4.18: Concerns about Sanitation or Cleanliness of Types of Food Packaging Made with Recycled Materials 1)

Types of Food Packaging	Very Concerned Percent	Somewhat Concerned Percent	Not Very Concerned Percent	Not Concerned At All Percent	Generally Not Concerned Percent 2)
Cereal packages and other paper food packages	41.5	22.3	13.8	3.6	17.9
Plastic food containers	40.6	21.0	16.1	3.1	17.9
Steel food cans	39.7	17.4	17.9	6.7	17.9
Plastic wraps or plastic bags for food items	38.8	21.4	15.6	5.8	17.9
Aluminum beverage cans	38.4	16.5	18.8	8.0	17.9
Plastic beverage bottles	37.1	21.0	17.4	5.8	17.9
Glass beverage bottles	36.2	15.6	20.5	8.9	17.9
Glass food jars	35.3	20.1	16.5	8.9	17.9

1) Since some respondents chose not to answer the question, or could not, the percentage total for each row will be less than 100 percent.

2) Of the total of 224 respondents, this group of 40 persons indicated they were generally not concerned about sanitation of any food packaging item. Therefore, they were not required to answer for the specific food packaging items.

In response to the question on non-food packaging as a group, approximately 34 percent of the respondents indicated they were generally "not concerned at all" about the cleanliness or sanitation of non-food packaging made from recycled materials (Table 4.19).

The group that reported being "very concerned" or "somewhat concerned" totaled 42 percent (Table 4.19). This is substantially less than the 64 percent of respondents who said they were "very concerned" or "somewhat concerned" about using recycled materials for food packaging items.

Table 4.19: Views on Sanitation or Cleanliness of General Non-food Packaging Made from Recycled Materials

Respondents Choice	Number	Percent
Very concerned	38	17.0
Somewhat concerned	56	25.0
Not very concerned	54	24.1
Not concerned at all	76	33.9
Total respondents	224	100.0

Those respondents who indicated they generally were "very concerned", "somewhat concerned", and "not very concerned" also were asked to respond to their degree of concern about seven listed types of non-food packaging. Among the seven listed types of non-food packaging (using the percentages of "very concerned" and "somewhat concerned"), the highest level of concern was reported for paper containers holding detergents and cleaning solutions, with the least concern for plastic garbage bags (Table 4.20). The range was fairly narrow, with concern for paper containers holding detergents and cleaning solutions reported at a high of 35 percent and plastic garbage bags reported at a low of 25 percent.

Table 4.20: Concerns about Sanitation or Cleanliness of Types of Non-food Packaging Made with Recycled Materials 1)

Types of Non-food Packaging	Very Concerned	Somewhat Concerned	Not very Concerned	Not Concerned At All	Generally Not Concerned 2)
	Percent	Percent	Percent	Percent	Percent
Paper containers holding detergents and cleaning solutions	13.8	21.4	22.8	8.0	33.9
Glass containers holding detergents and cleaning solutions	13.4	20.5	22.8	8.5	33.9
Plastic containers holding detergents and cleaning solutions	12.9	21.0	24.1	7.6	33.9
Paper shopping bags	12.9	19.2	25.4	8.5	33.9
Plastic shopping bags	11.6	21.9	24.6	8.0	33.9
Corrugated cardboard holding non-food items	9.8	21.0	27.7	7.6	33.9
Plastic garbage bags	8.5	16.5	28.6	12.5	33.9

1) Since some respondents chose not answer the question, or could not, the percentage total for each row may be less than 100 percent.

2) Of the total of 224 respondents, this group of 76 persons indicated they were generally not concerned about the sanitation of any non-food packaging item. Therefore, they were not required to answer for the specific non-food packaging.

The Willingness to Pay More for Recycled Materials

Respondents were asked if they would be willing to pay more for products made from recycled materials than for products made from new materials in order to encourage more recycling. Nearly 60 percent of respondents said they would pay more for products containing recycled materials than for products containing only new materials. About 36 percent of the respondents indicated they would pay nothing more for recycled products (Table 4.21).

Table 4.21: Willingness to Pay More for Products Containing Recycled Materials than for Products Containing New Materials

Respondents' Choice	Number	Percent
Would pay more	134	59.8
Would not pay more	81	36.2
Don't know	9	4.0
Total respondents	224	100.0

Those respondents indicating a willingness to pay more for a product containing recycled materials in order to encourage recycling were asked about the magnitude of the payment they would make. Choices included 1 to 5 percent more, 6 to 10 percent more, 11 to 15 percent more, 16 to 20 percent more, 21 to 25 percent more, and 26 percent or more. One-third of the respondents would pay "1 percent to 5 percent more" for products containing recycled materials. About one

in five consumers said they would willingly pay "6 percent to 10 percent more". A few were willing to pay over 10 percent more for products containing recycled materials and a few others were unsure of what they would pay (Table 4.22).

Table 4.22: Magnitude of Additional Payment Respondents Were Willing to Make for Products Containing Recycled Materials

Additional Payment	Number	Percent
No more	81	36.2
1% to 5% more	74	33.0
6% to 10% more	47	21.0
11% to 15% more	6	6.7
16% to 20% more	1	0.4
21% to 25% more	0	0
26% or more	2	0.9
Don't know	13	5.8
Total respondents	224	100.0

Respondents also were asked if they would be willing to pay more for products packaged in containers made from recycled materials than for products packaged in containers made from new materials. Approximately 63 percent said they would pay more for products packaged in containers made from recycled materials in order to encourage recycling. Approximately 34 percent of the respondents reported that they would pay nothing extra for the products packaged in

containers made from recycled materials (Table 4.23).

Table 4.23: Willingness to Pay More for Products Packaged in Containers Made from Recycled Materials than for Products Packaged in Containers Made from New Materials

Respondents' Choice	Number	Percent
Would pay more	141	63.0
Would not pay more	76	33.9
Don't know	7	3.1
Total respondents	224	100.0

Again, those respondents willing to pay more for products packaged in containers made from recycled materials were asked the magnitude of the added payment they were willing to make. About 37 percent of the consumers were willing to pay "1 percent to 5 percent more", while 20.5 percent of the consumers were willing to pay "6 percent to 10 percent more" for the products packaged in containers made from recycled materials. As in the case of recycled products, few respondents were willing to pay more than 10 percent more for products packaged in containers made from recycled materials (Table 4.24).

Table 4.24: Magnitude of Additional Payment Respondents Were Willing to Make for Products Packaged in Containers Made from Recycled Materials

Additional Payment	Number	Percent
No more	76	33.9
1% to 5% more	83	37.1
6% to 10% more	46	20.5
11% to 15% more	8	3.6
16% to 20% more	0	0
21% to 25% more	0	0
26% or more	1	0.4
Don't know	10	4.5
Total respondents	224	100.0

Attitudes about Government Assistance for Recycled Products and Packaging

When the researcher asked respondents, "should government provide assistance for manufacturers to produce packaging or products made from recycled materials?", the majority of the respondents reacted positively. There were six types of government assistance listed for the respondents' consideration in making their responses. A substantial majority (87 percent) of the respondents said government should provide grants for research and development to private manufacturers that will produce packaging or products from

recycled materials, while another 86 percent of the respondents indicated that government should provide low interest loans (Table 4.25).

Table 4.25: Views about Government Assistance for Manufacturers to Produce Packaging or Products Made from Recycled Materials

Government Assistance	Number	Percent
Grants for research and development	195	87.1
Low interest loans	193	86.2
Start-up assistance	177	79.1
Technical or business assistance	163	72.8
Tax breaks or tax abatement	160	71.4
Subsidies for leasing sites or buildings	149	66.5
Total respondents reporting	224	100.0

Respondents also were asked whether the government should provide other forms of assistance other than those listed for respondents and reported above in Table 4.25. Few respondents had additional suggestions for assistance. Those that were given included: encourage companies to recycle, fund recycling program, encourage public to use recycled products, provide tax incentives/tax relief, and inspect recycled products.

Respondents indicated that when they were recommending various forms of government assistance that they most often were thinking about help from the federal government (Table 4.26). The next most frequent form of assistance was a

combination of local, state and federal governments assistance.

Table 4.26: Sources of Governmental Assistance Respondents Had in Mind When Recommending Government Assistance to Manufacturers

Respondents' Choice	Number	Percent
Federal government	88	39.3
Combinations of local, state, and federal	53	23.6
State government	23	10.3
Local government	19	8.5
Don't know/no response	41	18.3
Total respondents	224	100.0

Primary Source of Information about Products

One question asked the consumers was, from which "sources do you obtain most of your information about the quality and safety of products you purchase?" One-third of the consumers said the newspaper was a source of most of their information about quality and safety of products, followed by television with 28 percent, and magazines with 16 percent (Table 4.27).

Table 4.27: Primary Source of Information About Quality and Safety of Products

Sources	Number	Percent
Newspaper	75	33.5
Television	63	28.1
Magazines	36	16.1
Shopping guide	7	3.1
Direct mail advertisements and fliers	6	2.7
School	4	1.8
Radio	3	1.3
Work	2	0.9
Other	24	10.7
Don't know	4	1.8
Total respondents	224	100.0

Test of Hypotheses

Six hypotheses were identified as important in increasing our understanding of consumer attitudes about acceptance and use of products and packaging containing recycled materials. They are:

1. There is a positive relationship between environmental awareness and acceptance of products containing recycled materials.

2. Education level and income level of consumers will be positively correlated with positive attitudes toward consumption of products containing recycled materials.

3. Consumers attitudes about product acceptance will differ for different types of recycled products.

4. The more expensive the recycled product relative to similar products made from new materials, the lower will be the rate of acceptance of that product.

5. There is a positive relationship between environmental awareness and the willingness to pay more for the products containing recycled materials.

6. There is a positive relationship among education level, income level, and the willingness to pay more the products containing recycled materials.

These hypotheses supplement the array of observations presented in the previous section of this chapter. The hypotheses not only test important relationships, but provide insights important for both public sector and private sector actions.

Hypothesis 1: There is a positive relationship between environmental awareness and acceptance of products containing recycled materials.

Six correlations were computed to examine this hypothesis. The six relationships for which correlation coefficients were computed are listed in Table 4.28. Environmental awareness was represented by (1) attitude about

waste disposal, (2) familiarity with recycling, and (3) having read or heard about recycling. Acceptance of products containing recycled materials was represented by (1) looking for recycled materials, and (2) willingness to buy recycled products.

Statistically significant relationships were found between environmental awareness and the acceptance of products containing recycled materials. Table 4.28 indicates significant relationships for each of six correlations at the 0.01 level. This hypothesis was accepted.

Table 4.28: Relationship between Environmental Awareness and Acceptance of Products Containing Recycled Materials

Variables	Correlation Coefficients	Significance Level
Attitude about waste disposal/ look for recycled materials	0.3657	0.01
Familiarity with recycling/ look for recycled materials	0.2402	0.01
Read or heard about recycling/ look for recycled materials	0.2648	0.01
Attitudes about waste disposal/ willingness to buy recycled products	0.2211	0.01
Familiarity with recycling/ willingness to buy recycled products	0.2443	0.01
Read or heard about recycling/ willingness to buy recycled products	0.3439	0.01

Hypothesis 2. Education level and income level of consumers will be positively correlated with positive attitudes toward consumption of products containing recycled materials.

To test this hypothesis, correlation analysis was used. Correlated with education levels were three indicators of attitude toward consumption of products containing recycled materials: (1) looking for recycled materials, (2) willingness to buy recycled products, and (3) attitudes about quality of recycled products. There were no significant relationships found between the education level and attitudes toward consumption of products containing recycled materials (Table 4.29).

Table 4.29: Relationship between Education Level and Attitudes toward Consumption of Products Containing Recycled Materials

Variables	Correlation Coefficients	Significance Level
Look for recycled products	-0.0447	N.S. 1)
Willingness to buy recycled products	0.0549	N.S.
Attitudes about quality of recycled products	-0.1272	N.S.

1) N.S. means no significance.

The data indicate that there was a significant positive relationship between income and willingness to buy recycled products but there was also a negative relationship between income and attitudes about quality of recycled products (Table 4.30). It appears there was no consistent positive

relationship between income level and attitudes toward consumption of products containing recycled materials. The data did not support this hypothesis.

Table 4.30: Relationship between Income Level and Attitudes toward Consumption of Products Containing Recycled Materials

Variables	Correlation Coefficients	Significance Level
Look for recycled products	0.0540	N.S. 1)
Willingness to buy recycled products	0.1405	0.05
Attitudes about quality of recycled products	-0.1416	0.05

1) N.S. means no significance.

Hypothesis 3. Consumers attitudes about product acceptance will differ for different types of recycled products.

To test this hypothesis, three types of available measures were used: (1) consumers' views about quality of recycled products, (2) consumers' concern about sanitation or cleanliness of types of food packaging made with recycled materials, and (3) consumers' concern about sanitation or cleanliness of non-food packaging items made from recycled materials. Each variable is presented in the frequency tables, and shows differences for the various recycled products.

The frequencies show that consumer views about quality differ for different types of recycled products (Table 4.31). Of particular note in Table 4.31 is the large difference in

consumers' views about recycled paper products, compared to aluminum and glass or plastic and steel.

Table 4.31: Consumers' Views About Quality of Recycled Products 1)

Recycled Materials	Consumers indicating recycled materials lower quality than new materials Percent	Consumers indicating recycled materials about the same quality as new materials Percent	Consumers indicating recycled materials higher quality than new materials Percent
Aluminum	3.0	84.8	0.9
Glass	2.2	88.4	0.9
Paper	23.2	71.4	1.3
Plastic	5.9	84.7	1.4
Steel	5.9	84.6	0.9

1) Of the total of 224 respondents, some 89 percent to 96 percent were able to provide these qualitative responses. The remaining 4 to 11 percent chose not to answer or were unable to do so. Therefore, the percentages given here for each recycled material total to less than 100 percent.

Respondents' concerns about sanitation and cleanliness varied but not greatly, depending on the types of food packaging made from recycled materials. The concern was greatest for cereal packages and other paper food packages and the least for glass beverage bottles and glass food jars (Table 4.32). Concern about other forms of food packaging fell within the range.

Table 4.32: Concerns about Sanitation or Cleanliness of Types of Food Packaging Made from Recycled Materials 1)

Food Packaging	Very Concerned Percent	Somewhat Concerned Percent	Not Very Concerned Percent	Not Concerned At All Percent	Generally Not Concerned Percent 2)
Cereal packages and other paper food packages	41.5	22.3	13.8	3.6	17.9
Plastic food containers	40.6	21.0	16.1	3.1	17.9
Steel food cans	39.7	17.4	17.9	6.7	17.9
Plastic wraps or plastic bags for food items	38.8	21.4	15.6	5.8	17.9
Aluminum beverage cans	38.4	16.5	18.8	8.0	17.9
Plastic beverage bottles	37.1	21.0	17.4	5.8	17.9
Glass beverage bottles	36.2	15.6	20.5	8.9	17.9
Glass food jars	35.3	20.1	16.5	8.9	17.9

1) Since some respondents chose not to answer the question, or could not, the percentage total for each row will be less than 100 percent.

2) Of the total of 224 respondents, this group of 40 persons indicated they were generally not concerned about sanitation of any food packaging item. Therefore, they were not required to answer for the specific food packaging items.

Regarding non-food packaging made from recycled materials, concerns about sanitation or cleanliness varied somewhat by type of packaging but not greatly. Concern about packaging for detergents and cleaning solutions was greater than for paper and plastic bags and cardboard boxes holding non-food items (Table 4.33).

A sizeable difference in consumer concern is evident, however, when one contrasts food packaging and non-food packaging. The concern about sanitation or cleanliness of food packaging made from recycled materials was more than two times higher than the concern for non-food packaging made from recycled material (Table 4.34).

As shown in Table 4.32, Table 4.33, and Table 4.34, consumers' concerns about the sanitation or cleanliness vary for different types of recycled products. In addition, the analysis of variance shows significant difference ($F = 5.0806$, probability = 0.000) among the eight listed food packaging items and significant difference among the seven non-food packaging items ($F = 5.0950$, probability = 0.000). Therefore, hypothesis No. 3, "consumer attitudes about products acceptance will differ for different types of recycled products", was accepted.

Table 4.33: Concerns about Sanitation or Cleanliness of Types of Non-food Packaging Made from Recycled Materials 1)

Non-food Packaging	Very Concerned Percent	Somewhat Concerned Percent	Not very Concerned Percent	Not Concerned At All Percent	Generally Not Concerned Percent 2)
Paper containers holding detergents and cleaning solutions	13.8	21.4	22.8	8.0	33.9
Glass containers holding detergents and cleaning solutions	13.4	20.5	22.8	8.5	33.9
Plastic containers holding detergents and cleaning solutions	12.9	21.0	24.1	7.6	33.9
Paper shopping bags	12.9	19.2	25.4	8.5	33.9
Plastic shopping bags	11.6	21.9	24.6	8.0	33.9
Corrugated cardboard holding non-food items	9.8	21.0	27.7	7.6	33.9
Plastic garbage bags	8.5	16.5	28.6	12.5	33.9

1) Since some respondents chose not answer the question, or could not, the percentage total for each row may be less than 100 percent.

2) Of the total of 224 respondents, this group of 76 persons indicated they were generally not concerned about the sanitation of any non-food packaging item. Therefore, they were not required to answer for the specific non-food packaging items.

Table 4.34: Comparison of Concerns about Sanitation or Cleanliness of Food Packaging and Non-food Packaging Made from Recycled Materials 1)

Types of Packaging	Very Concerned Percent	Somewhat Concerned Percent	Not Very Concerned Percent	Not Concerned At All Percent	Generally Not Concerned Percent 2)
Food packaging group 3)	38.5	19.4	17.1	6.4	17.9
Non-food Packaging group 4)	11.8	20.2	25.1	8.7	33.9

1) Some respondents chose not to answer the questions, or could not. Therefore, the totals of percentages for each row are less than 100 percent.

2) This group of respondents indicated they were generally not concerned at all about the sanitation of food packaging or non-food packaging. Therefore, they were not required to answer for the specific food packaging items or non-food packaging items.

3) Average percentages for this food packaging group are based on simple arithmetic averages of columns presented for Table 4.32.

4) Average percentages for this non-food packaging group are based on simple arithmetic averages of columns presented for Table 4.33.

Hypothesis 4. The more expensive the recycled product relative to similar products made from new materials, the lower will be the rate of acceptance of that product.

To test this hypothesis, three measures were used (1) lower price, (2) same price, and (3) higher price. "Lower price" comparisons were represented by: (1) Recycled product was 10 percent lower in price but 10 percent lower in quality than the same product made from new materials; (2) Recycled product was 10 percent lower in price but had the same quality as the new product; (3) Recycled product was 10 percent lower in price and 10 percent higher in quality than the same product made from new material.

"Same price" comparisons were represented by: (1) Recycled product was the same in price but 10 percent lower in quality than the same product made from new material; (2) Recycled product was the same in price and had the same quality as the product made from new material; (3) Recycled product was the same in price but 10 percent better in quality than the same product made from new material.

"Higher price" comparisons were represented by: (1) Recycled product was 10 percent higher in price but 10 percent lower in quality than the same product made from new materials; (2) Recycled product was 10 percent higher in price but had the same quality as the product made from new materials; (3) Recycled product was 10 percent higher in price

and 10 percent higher in quality than the same product made from new materials.

The relationship between the relative cost of the recycled product and the acceptance of that product was analyzed by mean scores and analysis of variance. Table 4.35 indicates that the mean scores for willingness to buy clearly favor those situation in which the relative price of the product made from recycled material is less than, or the same as, the product made with new materials. The mean scores was the largest for the group of lower priced recycled products. The mean scores was the smallest for the group of higher priced recycled products. It can be concluded that the more expensive the recycled product relative to those with new materials, the lower will be the rate of acceptance of that product.

The data of analysis of variance presented Table 4.36, also show a very strong relationship (probability = 0) between relative cost and the acceptance of the product made with recycled materials. This hypothesis was accepted.

Table 4.35: Relationship between Relative Cost of Recycled Product and the Acceptance of that Product Made with Recycled Materials

Variables	Mean Score	Standard Deviation
Lower price	4.2686	0.6795
Same price	3.9269	0.8319
Higher price	2.9132	0.9930

Table 4.36: Analysis of Variance between Relative Cost of Recycled Product and the Acceptance of that Product Made with Recycled Materials

Source of Variation	Sum of Square	Degree of Freedom	Mean Square	F	Probability
Between respondents	297.0891	218	1.3628		
Within respondents	387.0741	438	0.8837		
Between measures	217.6470	2	108.8235	280.0440	0
Residual	169.4271	436	0.3886		
Total	684.1632	656	1.0429		

Hypothesis 5. There is a positive relationship between environmental awareness and the willingness to pay more for products and packaging containing recycled materials.

Six t-test measures were conducted to analyze the relationship between environmental awareness and the willingness to pay more for the products and packaging containing recycled materials. The characteristics used as indicators of environmental awareness were, (1) attitude about waste disposal, (2) familiarity with recycling, and (3) reading or hearing about recycling.

The statistical data, showing a significant relationship between environmental awareness and the willingness to pay more for products and packaging containing recycled materials, are presented in Table 4.37. The low computed probabilities for each variable tested indicate a strong relationship between environmental awareness indicators and willingness to

pay. The mean score of willingness to pay more (the mean score of 'Yes') for each variable is also larger than the mean score of unwillingness to pay more (the mean score of 'No'). Therefore, the hypothesis was accepted.

Table 4.37: T-test Analysis of Relationship between Environmental Awareness and Willingness to Pay More for Products and Packaging Containing Recycled Materials

Variables		Mean Score	Probability
Attitude about waste disposal/ willingness to pay more for recycled products	Yes	3.4104	
	No	3.1420	0.001
Attitude about waste disposal/ willingness to pay more for recycled packaging	Yes	3.4078	
	No	3.1118	0.000
Familiarity with recycling/ willingness to pay more for recycled products	Yes	2.5410	
	No	2.4198	0.035
Familiarity with recycling/ willingness to pay more for recycled packaging	Yes	2.5426	
	No	2.4079	0.023
Read or heard about recycling/ willingness to pay more for recycled products	Yes	8.6194	
	No	7.4198	0.006
Read or heard about recycling/ willingness to pay more for recycled packaging	Yes	8.4752	
	No	7.4211	0.018

Hypothesis 6. There is a positive relationship among education level, income level, and the willingness to pay more for products and packaging containing recycled materials.

The researcher used crosstabs to determine the relationship between education level, income level, and the willingness to pay more for products and packaging containing recycled materials. The education levels considered were, (1) 12th grade or less, (2) completed high school, (3) some college, (4) completed college, and (5) advanced degree. The analysis of the relationship between education level and willingness to pay shows no significant relationship exists for the survey responses obtained. The data in Tables 4.38 and 4.39 indicate there was no significant relationship between education and the willingness to pay more for products or packaging containing recycled materials.

The income levels considered in this analysis were, (1) less than $15,000, (2) $15,000 to $29,999, (3) $30,000 to $44,999, (4) $45,000 to $59,999, and (5) $60,000 or over. The analysis of the relationship between income level and willingness to pay more shows no significant relationship exists for the survey data (Table 4.40 and Table 4.41). Thus, the analysis of survey data did not support this hypothesis.

Table 4.38: Relationship between Education and Willingness to Pay More for Products Containing Recycled Materials 1)

Education Level		No More	1% To 5%	6% To 10%	11% or More	Total
12th Grade or Less	Number	17	15	10	1	43
	Percent	39.5	34.5	23.3	2.3	20.4
Completed High School or GED	Number	20	13	9	3	45
	Percent	44.4	28.9	20.0	6.7	21.3
Some College	Number	28	25	15	2	70
	Percent	40.0	35.7	21.4	2.9	33.2
Completed College	Number	13	17	9	2	41
	Percent	31.7	41.5	22.0	4.9	19.4
Advanced Degree	Number	3	4	4	1	12
	Percent	25.0	33.3	33.3	8.3	5.7
Total	Number	81	74	47	9	211
	Percent	38.4	35.1	22.3	4.3	100.0

Chi-square Value	Degree of Freedom	Significance
5.13730	12	0.95324

1) Since some respondents chose not to answer the question, or could not, the respondent total will be less than 224. In addition, the percentage calculation was based on the total number of respondents who answered the question.

Table 4.39: Relationship Between Education and Willingness to Pay More for Products Packaged in Containers Made from Recycled Materials 1)

Education Level		No More	1% To 5%	6% To 10%	11% or More	Total
12th Grade or Less	Number	13	18	12	1	44
	Percent	29.5	40.9	27.3	2.3	20.6
Completed High School or GED	Number	20	12	9	4	45
	Percent	44.4	26.7	20.0	8.9	21.0
Some College	Number	27	28	15	1	71
	Percent	38.0	39.4	21.1	1.4	33.2
Completed College	Number	12	21	7	2	42
	Percent	28.6	50.0	16.7	4.8	19.6
Advanced Degree	Number	4	4	3	1	12
	Percent	33.3	33.3	33.3	8.3	5.6
Total	Number	76	83	46	9	214
	Percent	35.5	38.8	21.5	4.2	100.0

Chi-square Value	Degree of Freedom	Significance
11.21549	12	0.51055

1) Since some respondents chose not to answer the question, or could not, the respondent total will be less than 224. In addition, the percentage calculation was based on the total number of respondents who answered the question.

Table 4.40: Relationship between Income and Willingness to Pay More for Products Containing Recycled Materials 1)

Income Level		No More	1% To 5%	6% To 10%	11% or More	Total
Less than $15,000	Number	15	13	5	1	34
	Percent	44.1	38.2	14.7	2.9	17.3
$15,000 to $29,999	Number	20	16	8	1	45
	Percent	44.4	35.6	17.8	2.2	13.0
$30,000 to $44,999	Number	22	17	16	5	60
	Percent	36.7	28.3	26.7	8.3	30.6
$45,000 to $59,999	Number	12	9	6	1	28
	Percent	42.9	32.1	21.4	3.6	14.3
$60,000 or Over	Number	6	15	7	1	29
	Percent	20.7	51.7	24.1	3.4	14.8
Total	Number	75	70	42	9	196
	Percent	38.3	35.7	21.4	4.6	100.0

Chi-square Value	Degree of Freedom	Significance
14.94759	15	0.45520

1) Since some respondents chose not to answer the question, or could not, the respondent total will be less than 224. In addition, the percentage calculation was based on the total number of respondents who answered the question.

Table 4.41: Relationship between Income and Willingness to Pay More for Products Packaged in Containers Made from Recycled Materials 1)

Income Level		No More	1% To 5%	6% To 10%	11% or More	Total
Less than $15,000	Number	13	14	7	0	34
	Percent	38.2	41.2	20.6	0.0	17.3
$15,000 to $29,999	Number	17	19	8	1	45
	Percent	37.8	42.2	17.8	2.2	22.8
$30,000 to $44,999	Number	20	20	15	5	60
	Percent	33.3	33.3	25.0	8.3	30.5
$45,000 to $59,999	Number	11	13	4	2	30
	Percent	36.7	43.3	13.3	6.7	15.2
$60,000 or Over	Number	7	12	8	1	28
	Percent	25.0	42.9	28.6	3.6	14.2
Total	Number	68	78	42	9	197
	Percent	34.5	39.6	21.3	4.6	100.0

Chi-square Value	Degree of Freedom	Significance
10.58549	15	0.78139

1) Since some respondents chose not to answer the question, or could not, the respondent total will be less than 224. In addition, the percentage calculation was based on the total number of respondents who answered the question.

Analysis of Demographic Variables and Responses Relative to Consumer Attitudes toward Recycling and Recycled Products or Packaging

Information was obtained about six demographic conditions in this survey: gender, age, education, employment situation, income and community. The data were obtained in order to understand the significance of relationships between demographic conditions and the various indicators of consumer attitudes toward recycling and recycled products. The six demographic factors represent independent variables. The dependent variables, attitudes toward recycling and recycled products, included, (1) attitude about waste disposal, (2) familiarity with recycling, (3) reading or hearing about recycling, (4) recycling efforts of respondent, (5) willingness to separate garbage for curbside pick-up, (6) looking for recycled materials, (7) willingness to buy recycled products or packaging, (8) attitude about quality of recycled products, (9) attitude about government support for recycled products or packaging, and (10) willingness to pay more for recycled products or packaging.

Correlations or analysis of variance were used to determine the relationship between each demographic variable and each of the 10 dependent variables. The results of the analyses are reported below under gender, age, community, education, employment situation, and income.

Gender

Gender was coded as follows: female = 2 and male = 1. Therefore, positive correlations indicate that females have higher scores on the variable and negative correlations mean males have higher scores. The correlation coefficients show that there was a significant difference between gender and attitude about waste disposal (Table 4.42). The data indicate that slightly more females believed waste disposal was an important issue and they were more concerned with waste disposal as a local issue than were males.

Age

The age categories used in the survey ranged from 18 years to over 65 years of age. To determine the relationship between age and the 10 dependent variables, the age categories used were, (1) 18 to 24 years, (2) 25 to 34 years, (3) 35 to 49 years, (4) 50 to 64 years, and (5) 65 years or older.

A negative correlation of -0.1438 was observed between age and one dependent variable with a 0.05 level of significance (Table 4.43). This meant that older respondents were less willing to support government assistance for recycled packaging or recycled products than were younger respondents.

Table 4.42: Relationship between Gender and Attitudes about Recycling and Recycled Products or Packaging

Variables	Correlation Coefficients	Significance Level
Attitude about waste disposal	0.2303	0.01
Familiarity with recycling	0.0922	N.S. 1)
Read or heard about recycling	-0.0620	N.S.
Recycling efforts of respondent	-0.1145	N.S.
Willingness to separate garbage for curbside pick-up	-0.0063	N.S.
Look for recycled materials	0.0561	N.S.
Willingness to buy recycled products or packaging	0.0531	N.S.
Attitude about quality of recycled products or packaging	-0.0491	N.S.
Attitude about government support for recycled products or packaging	0.0017	N.S.
Willingness to pay more for recycled products or packaging	0.0670	N.S.

1) N.S. means no significance.

Table 4.43: Relationship between Age and Attitudes about Recycling and Recycled Products or Packaging

Variables	Correlation Coefficients	Significance Level
Attitude about waste disposal	0.0959	N.S. 1)
Familiarity with recycling	0.0587	N.S.
Read or heard about recycling	0.0233	N.S.
Recycling efforts of respondent	0.0058	N.S.
Willingness to separate garbage for curbside pick-up	0.0584	N.S.
Look for recycled materials	0.0239	N.S.
Willingness to buy recycled products or packaging	-0.1144	N.S.
Attitude about quality of recycled products or packaging	-0.0482	N.S.
Attitude about government support for recycled products or packaging	-0.1438	0.05
Willingness to pay more for recycled products or packaging	0.0453	N.S.

1) N.S. means no significance.

Community

Respondents were asked to describe the community in which they lived. The choices for response were, (1) city, (2) suburb, and (3) rural area. To determine the relationship between community and the 10 dependent variables, the same three community categories were used.

There was significant difference between the type of community within which respondents lived and their willingness to separate the garbage for curbside pick-up (Table 4.44). Those respondents who lived in rural communities were slightly more willing to participate in the separation of their household garbage if curbside pick-up were available than respondents who lived in a city or suburb.

Table 4.44: Relationship between Community and Attitudes about Recycling and Recycled Products or Packaging

Variables	Correlation Coefficients	Significance Level
Attitude about waste disposal	-0.0051	N.S. 1)
Familiarity with recycling	0.0755	N.S.
Read or heard about recycling	0.0764	N.S.
Recycling efforts of respondent	0.0324	N.S.
Willingness to separate garbage for curbside pick-up	0.1638	0.05
Look for recycled materials	0.0269	N.S.
Willingness to buy recycled products or packaging	0.1222	N.S.
Attitude about quality of recycled products or packaging	0.0041	N.S.
Attitude about government support for recycled products or packaging	-0.1037	N.S.
Willingness to pay more for recycled products or packaging	0.1287	N.S.

1) N.S. means no significance.

Education

The education categories that respondents used were, (1) 6th grade or less, (2) 7th to 12th grade,(3) completed high school or GED, (4) some college, trade or vocational school, (5) completed college, and (6) advanced degree. To determine the relationship between education and each dependent variable, the education categories used were, (1) 12th grade or less, (2) completed high school or GED, (3) some college, trade or vocational school, (4) completed college, and (5) advanced degree.

A significant relationship existed between the independent variable education and one dependent variable. A positive relationship exists between education and familiarity with recycling, significant at the 0.01 level (Table 4.45). The results indicate that the more educated respondents were more familiar with recycling and possessed more knowledge about whether their communities have recycling efforts under way than were the less educated respondents.

Table 4.45: Relationship between Education and Attitudes about Recycling and Recycled Products or Packaging

Variables	Correlation Coefficients	Significance Level
Attitude about waste disposal	-0.0269	N.S. 1)
Familiarity with recycling	0.2164	0.01
Read or heard about recycling	0.0787	N.S.
Recycling efforts of respondent	0.0937	N.S.
Willingness to separate garbage for curbside pick-up	-0.0432	N.S.
Look for recycled materials	-0.0447	N.S.
Willingness to buy recycled products or packaging	0.0549	N.S.
Attitude about quality of recycled products or packaging	-0.1272	N.S.
Attitude about government support for recycled products or packaging	-0.1235	N.S.
Willingness to pay more for recycled products or packaging	0.0517	N.S.

1) N.S. means no significance.

Employment Situation

Employment categories surveyed were, (1) employed full-time, (2) employed part-time, (3) full-time homemaker, (4) unemployed, (5) retired, (6) full-time student, and (7) other. To determine the relationship between employment and attitude about recycling and recycled products, these same employment categories were used.

Analysis of variance was used to determine the relationship between employment situation and attitude about recycling and recycled products. The results show a significant difference between employment situation and willingness to buy recycled products (Table 4.46). The data indicate the unemployed and retired people were less willing to buy recycled products than were the persons employed full-time.

Table 4.46: Relationship between Employment Situation and Attitudes About Recycling and Recycled Products or Packaging

Variables	Sum of Square	Degree of Freedom	Mean Square	F	Significance
Attitude about waste disposal	2.0330	6	0.0388	1.2135	0.3004
Familiarity with recycling	0.6784	6	0.1131	0.7835	0.5837
Read or heard about recycling	69.8813	6	11.6469	1.1835	0.3161
Recycling efforts	40.7853	6	6.7976	0.7251	0.6298
Willingness to separate garbage for curbside pick-up	25.6013	6	4.2669	1.0787	0.3762
Look for recycled products	1.9903	6	0.3317	0.4646	0.8341
Willingness to buy recycled products or packaging	5.8447	6	0.9741	2.2267	0.0418
Attitude about quality of recycled products or packaging	0.0700	6	0.0117	0.3691	0.8980
Attitude about government support for recycled products or packaging	0.3496	6	0.0583	0.8274	0.5498
Willingness to pay more for recycled products or packaging	0.9074	6	0.1512	0.7176	0.6358

Income

In this survey, respondents were asked to tell about their family's total income. The family income categories, to which respondents' replied were matched, were, (1) less than $15,000, (2) $15,000 to $29,999, (3) $30,000 to $44,999, (4) $45,000 to $59,999, (5) $60,000 to $74,999 and (6) $75,000 or more. To compute the relationship between income and the 10 dependent variables, these same income categories were used.

The analysis of correlations indicates a positive relationship between income and "read or heard about recycling". There is a significant correlation between income and "the willingness to buy recycled products". The analysis revealed a negative relationship between income and attitude about quality of recycled products. The negative relationship was also demonstrated between income and the attitude about government support for recycled products or packaging (Table 4.47). The analysis also indicated that higher income respondents read or heard more about recycling and were more willing to buy recycled products. However, higher income respondents reported less support for government assistance for recycled products or packaging and evidenced a negative attitude about quality of recycled products.

Table 4.47: Relationship between Income and Attitudes about Recycling and Recycled Products or Packaging

Variables	Correlation Coefficients	Significance Level
Attitude about waste disposal	-0.1313	N.S. 1)
Familiarity with recycling	0.0500	N.S.
Read or heard about recycling	0.1780	0.05
Recycling efforts of respondent	0.1073	N.S.
Willingness to separate garbage for curbside pick-up	0.0331	N.S.
Look for recycled materials	0.0540	N.S.
Willingness to buy recycled products or packaging	0.1405	0.05
Attitude about quality of recycled products or packaging	-0.1416	0.05
Attitude about government support for recycled products or packaging	-0.1988	0.01
Willingness to pay more for recycled products or packaging	0.1206	N.S.

1) N.S. means no significance.

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

The purpose of this study was to learn more about consumer attitudes concerning products made with recycled materials. The objectives of this study included, (1) to understand consumers' attitudes about products containing recycled materials, (2) to determine how satisfied consumers are with their uses of products containing recycled materials, (3) to identify circumstances that motivate consumers to accept products containing recycled materials, and (4) to discover whether there is potential for increasing the market demand for recycled materials.

A statewide telephone survey was conducted to measure attitudes toward recycling in general and products containing recycled materials in particular. The telephone interviews took place at the Center for Survey Research, Michigan State University. Primary shoppers, aged 18 years or over, were selected by interviewers within the randomly chosen households. A total of 224 respondents completed the interview.

The wealth of information provided by the telephone survey was arranged into three parts. The first was a series of frequencies providing major information about consumer attitudes. The second was a series of analyses, guided by six

hypotheses, which explained important relationships among consumer attitudes and actions about acceptance and use of products and packaging containing recycled materials. The third was an analysis of relationships between demographic variables and consumer attitudes toward recycling and recycled products. Key findings are arranged according to these three parts.

Summary Observations from Frequencies

1. Most consumer respondents thought waste disposal was an important environmental issue and were also concerned about it as a local issue.

2. The respondents were familiar with recycling. The majority, 7 in 10, indicated their communities have some recycling efforts under way. Among 14 recyclable items, respondents identified the newspaper's possible recycling as the one item they most heard or read about during the past 12 months.

3. Consumer respondents did not have much involvement in source separation of waste generated by their household, but they were willing to put more effort into garbage separation if curbside pick-up were available in their communities.

4. A majority of respondents have used products made from recycled materials. When selecting products, they also have looked to see whether or not products or packaging were made with recycled materials.

5. Among five recycled materials--aluminum, glass, paper, plastic, and steel--paper products were rated the lowest in quality when compared to products made from new materials.

6. A majority of the consumer respondents were concerned about the sanitation or cleanliness of packaging made with recycled materials. Clearly, the concern was greater for food packaging than for non-food packaging.

7. To foster recycling, nearly 6 in 10 of the respondents would willingly pay more for a product or packaging containing recycled materials than for a product or packaging made with new materials. Over one-third of the consumers were willing to pay "1 percent to 5 percent" more, while another one-fifth were willing to pay "6 percent to 10 percent" extra for recycled products or packaging.

8. Most respondents supported government assistance to manufacturers to provide products or packaging made from recycled materials. The two most favored methods for assistance, selected by respondents, were the provision of grants for research and development and the provision of low-interest loans. Nearly half of the respondents believed the U.S. federal government should provide this assistance to the manufacturers.

9. One-third of the consumer respondents surveyed said the newspaper was their major source for obtaining most information about the quality and safety of products.

Summary of Observations from Test of Hypotheses

1. People who were more environmentally conscious were more willing to accept products containing recycled materials.

2. Education level differences and income level differences did not correlate with differences in consumer attitudes toward consumption of products containing recycled materials.

3. Respondents' attitudes about product acceptance differ for different types of recycled materials.

4. Relative cost was the most important factor determining respondents' decisions to purchase products or packaging containing recycled materials. The more expensive the recycled product or packaging relative to a similar ones made from new materials, the lower the rate of acceptance of the product or packaging made from recycled materials.

5. Consumers who were more environmentally conscious were willing to pay more for products containing recycled materials.

6. Higher education levels and higher income levels did not correlate with willingness to pay more for the products or packaging made from recycled materials.

Summary of Observations from Analysis of Demographic Variables

1. A greater proportion of females thought waste disposal was an important issue and were more concerned with waste disposal as a local issue than were males.

2. Older respondents were less willing to support government assistance to private manufacturers to produce packaging or products containing recycled materials than were younger respondents.

3. Those consumers who lived in rural communities were slightly more willing to participate in the separation of their household garbage if the curbside pick-up for recyclables were available in their communities.

4. More educated people were more familiar with recycling and more knowledgeable about whether their community had recycling efforts in effect.

5. The unemployed and retired people were less willing to buy recycled products than were those employed full-time.

6. Higher income people heard or read more about the possibility of recycling during the past 12 months and were more willing to buy recycled products. Yet these higher income consumers were less willing to support government assistance to manufacturers producing recycled products or packaging and were less likely to believe the recycled products have the same or higher quality than new products.

7. Those consumer respondents who said they were willing to pay more for recycled products and packaging, also (1) considered waste disposal an important issue, (2) were more familiar with recycling, (3) had heard or read more about recycling, (4) had more knowledge about their community's recycling efforts, (5) more frequently participated in

recycling efforts, (6) more frequently looked to see whether the products or packaging were made with recycled materials, (7) were more willing to buy recycled products, and (8) had a more positive attitude about the quality of recycled materials.

Implications

Despite the growing public concern about waste disposal and recycling, consumers in Michigan largely do not participate in recycling efforts. With the exception of returnable bottles, cans and glass containers, most of the primary consumers surveyed did not separate the recyclable items from their household garbage.

A high willingness to separate garbage, however, was expressed if curbside pick-up for recyclables were available in the community. This indicates that convenience in community collection from households may be the key to encouraging more voluntary involvement in recycling efforts for individual consumers. Consumers will respond well to recycling if it is made easy for householders to separate and dispose of recyclable materials. Likewise communities or private recycling firms that routinely pick up recyclable materials can expect a strong consumer response.

In general, consumers appear highly sensitive to price differentials between products made from recycled materials and those made from new materials. Despite the willingness to

advance recycling and to pay more for products made from recycled materials by a majority of respondents, the price differential they would support would be 10 percent or less. Products containing recycled materials have to be competitively priced when compared to new products. If they can be priced the same as similar products made from new materials, or slightly less, their demand can be increased substantially. Pricing them more than 10 percent above similar products made from new materials would results in a serious reduction in demand, despite consumer interest in advancing recycling.

In several previous studies, quality of products containing recycled materials was identified as one of the major problems of market demand for recycled materials. Some studies went so far as to indicate that people have a persistent bias against products made with recycled materials. This study, however, did not find the respondents possessed substantial negative attitudes about the quality of recycled materials and products. Most consumers thought the quality of recycled materials to be about the same as new materials. The data indicated that although recycled paper was the lowest rated material among five identified recycled materials, 71 percent of consumers surveyed said the recycled paper was about the same quality as new paper. It can be concluded from this study that, in Michigan, the majority of consumers likely

are satisfied with the quality of recycled materials and products.

A nationwide survey in 1990 conducted by the Roper Organization, indicated that income, education, and gender play important roles in an individual's commitment to the environment. However, in this study, these personal characteristics--income, education and gender--appeared to have no strong influence on consumer attitudes toward products containing recycled materials. The lack of significant interaction between personal characteristics and consumer attitudes toward recycling and toward products containing recycled materials could lead one to suspect that the social value of recycling has been well publicized and reasonably well understood throughout the State of Michigan. The majority of consumers have positive perceptions about the importance of recycling and were equally willing to participate in the recycling efforts. In addition, it is possible that convenience to consumers in separation and disposition of recyclable materials, and consumer sensitivity to price differentials are far more important in determining consumer attitudes toward recyclable materials.

Recommendations

Recommendations to Manufacturers

This study has demonstrated that consumers have formed positive attitudes toward recycling and products containing

recycled materials. Manufacturers would be well advised to develop appropriate strategies for increasing the market demand of recycled materials. The following are recommendations based on the results of this study:

1. Development and offering of competitively priced recycled products is needed for increasing the market demand. Pricing of products and packaging at the same price or slightly lower than similar products made of new materials could greatly increase consumer demand, with likely production and marketing efficiencies and economies to follow.

2. Within the health-oriented American society, the sanitation and cleanliness of products and packaging is important to consumers. This study indicates that about 82 percent of consumers surveyed are concerned about the sanitation and cleanliness of recycled food packaging--reporting they were either somewhat concerned or very concerned. Recycled cereal packages and other paper food packages, were reported as the top concern by consumers. Information about the cleanliness of a product or packaging could be added to the label of recycled food packaging.

3. Analyses of survey data showed, in general, consumers were most receptive to glass recycled products. Concerning specific products, consumers were most receptive to greeting cards and writing paper among the paper products. Consumers were most receptive to plastic benches, picnic tables, tables and chairs among the plastic products.

The results of this study also indicate that less than 6 percent of consumers said recycled aluminum, glass, plastic and steel were of a lower quality than new materials. However, over 20 percent of the consumers indicated recycled paper was of a lower quality than new paper. Possibly, a public campaign of information about the quality and usefulness of recycled paper is needed to improve its image.

Recommendations to Retailers

Retailers play a very important role in promoting products containing recycled materials. A significant number of today's consumer goods commonly contain recycled materials. However, without the positive disclosure of this information, an opportunity will be missed for the high performance of recycled materials.

This study indicates that a majority of consumers obtain major information about safety and quality of products from newspapers and television. Therefore, retailers could regularly run newspaper advertisements to promote their environmental efforts and provide consumers with information about recycled products. As another useful promotion technique, retailers also could use shelf tabs to mark recycled products.

Likewise, use of some clearly sanctioned and widely used symbols for recycled materials also could be considered by retailers, such as a system is in operation in Canada with support and monitoring by the Canadian government. A similar

U.S. system might augment retail demand, and in turn, increase production demand for products made with recycled materials.

Recommendations to Government

The success of widespread recycling efforts also depends on consumers' response to the policies set by the federal government and to the guidance and policy implementation by state and local governments. If recycling is to become standard, then a national policy should be created to foster market development.

Governments, especially federal government, should provide grants for the development of new and low-cost technologies for processing recycled materials and for exploring new uses for recycled materials. Other forms of financial and technical assistance, such as low-interest loans, start-up assistance, and tax breaks to manufacturers to encourage the production and use of products or packaging made with recycled materials, are also recommended.

In order to encourage the use of recycled products, governments could have mandatory procurement programs to buy competitively priced goods containing recycled materials. Use of recycled products by federal agencies is important, not only because of the large amount of federal purchase, but also because federal procurement arrangements are often used by state, local, and private organizations as a model for their programs establishment to buy recycled products (World Paper 76, April 1987, p.40). In addition, as the market increases

for recycled products, efficiencies and economies should occur and product prices should become more competitive.

This study revealed a high degree of consumer willingness to separate garbage if curbside pick-up were available. State and local governments should make every effort to increase curbside pick-up recycling programs.

Further, Federal and state governments and manufacturers and wholesale and retail associations may want to consider exploring the system of recycling standards and labeling now in operation in Canada. Products can carry the Canadian symbol of recycling if they fully meet the standards established.

Recommendations for Future Research

Social psychologists and sociologists have already conducted numerous studies on consumer attitudes about separation and collection of materials for recycling. The subject of consumer attitudes about marketing of recyclable materials has received very limited attention. This study is but one of a few studies about consumer attitudes toward products and packaging using recycled materials. Clearly it is limited in scope.

More extensive studies would be desirable. Such studies could address the frequency of consumer purchasing of recycled products, opinions on experience with recycled products used, suggestions on label information and symbols for recycled packaging and recycled products, and consumer views concerning

performance of manufacturers and retailers regarding products and packaging made from recycled materials. Regional or national approaches, as well as state studies, would be desirable. Research also is recommended to assess the attitude of business and industry about recycling and production and sale of products and packaging made from recycled materials.

Conclusions

Growing volumes of waste and a scarcity of disposal sites plague governmental jurisdictions everywhere in the United States. Recycling offers communities the opportunity to reduce their waste and ease environmental stresses, while offering society new streams of resources. Recycling programs are being tried in many states and cities. The U.S. Environmental Protection Agency supports aggressive recycling programs and believes it can achieve a goal of 25 percent recycling at waste streams over a relatively short period of time.

However, simply increasing the collection and supply of recycled materials without increasing demand only leads to glutted markets for recyclable materials. Glutted markets and resulting elimination of collection and recycling activities until supplies are used, undoubtedly impacts consumers' actions and attitudes. Without strong and stable markets for end products, recycling is disadvantaged and waste streams

will cause greater adverse environmental impact than necessary.

The achievement of the goals of environmental protection and enhancement depends in part on sound assumptions about the attitudes and behavior of individuals. When it comes to the issues of solid waste, individuals' views and actions are important because they are most directly involved in the solid waste problems. Consumer participation and market development for recycled products and packaging appear to be two keys to successful recycling programs.

The main objective of this study was to understand consumer attitudes about products containing recycled materials and to discover whether there is a potential to increase market demand for recycled materials. The results of the study demonstrated that recycling has been well publicized in Michigan and the majority of the consumers have formed positive attitudes about recycled materials. The consumers are willing to contribute money (although only a little more), time, and effort to the purchase of products and packaging made from recycled materials.

It appears that potential exists to increase the market demand for recycled materials. It is time for manufacturers, retailers, and governments closely working together to develop strategies and actions for stronger markets for recycled materials. Hopefully, the findings derived from this study have provided some useful insights to encourage actions in the

market to enhance the demand for products and packaging made from recycled materials.

APPENDICES

APPENDIX A:

SAMPLE SOURCE MATERIALS

In the following sample analysis the percentages are identified as follows:

SAMPLE - % of total sample which fell in this county.

HHLD'S - % of total households in universe from this county.

ESTPHN - % of total telephone households in universe from this county.

LISTED - % of total directory-listed households which fell into this county.

W/PHN - % of households in this county estimated to have phones.

W/LISPHN - % of telephone households in this county which were listed. (The W/LISPHN % may exceed 100 if the number of listed households is too high (due to multiple listed phones per household or SSI's assignment of exchanges to the county of plurality) or the number of telephone households has been estimated too low (due to seasonal homes, use of projected household figures or use of 1983 census phone household data).)

COUNTY NAME	SAMPLE	HHLDS	ESTPHN	LISTED	W/PHN	W/LISPHN
	%	%	%	%	%	%
ALCONA	0.2	0.1	0.1	0.2	93.0	78.5
ALGER	0.0	0.1	0.1	0.0	91.2	32.4
ALLEGAN	1.0	0.9	0.9	0.9	94.6	62.9
ALPENA	0.3	0.3	0.3	0.5	94.6	96.6
ANTRIM	0.1	0.2	0.2	0.2	93.0	76.0
ARENAC	0.2	0.2	0.2	0.2	88.4	93.2
BARAGA	0.1	0.1	0.1	0.1	93.0	48.2
BARRY	0.4	0.5	0.5	0.5	95.4	62.4
BAY	1.2	1.2	1.2	1.3	95.8	69.5
BENZIE	0.1	0.1	0.1	0.2	92.2	108.6
BERRIEN	1.9	1.8	1.8	2.1	94.2	71.1
BRANCH	0.4	0.4	0.4	0.5	92.6	67.6
CALHOUN	1.6	1.6	1.6	1.5	95.4	61.6
CASS	0.6	0.5	0.5	0.5	93.8	55.7
CHARLEVOIX	0.2	0.2	0.2	0.4	93.8	94.9
CHEBOYGAN	0.2	0.2	0.2	0.3	93.8	83.3
CHIPPEWA	0.3	0.3	0.3	0.3	91.8	59.2
CLARE	0.2	0.3	0.3	0.4	92.2	91.7
CLINTON	0.7	0.6	0.6	0.5	97.0	59.4
CRAWFORD	0.1	0.1	0.1	0.1	91.6	43.2
DELTA	0.3	0.4	0.4	0.5	95.0	80.0
DICKINSON	0.3	0.3	0.3	0.4	96.6	76.3
EATON	1.0	1.0	1.1	1.2	97.0	69.9

EMMET	0.3	0.3	0.3	0.5	93.8	109.1
GENESEE	4.7	4.7	4.6	4.5	95.4	60.5
GLADWIN	0.2	0.3	0.3	0.3	92.6	85.1
GOGEBIC	0.2	0.2	0.2	0.2	93.8	73.5
GRAND TRAVERSE	0.7	0.7	0.7	1.1	95.8	97.2
GRATIOT	0.4	0.4	0.4	0.5	93.0	71.7
HILLSDALE	0.4	0.5	0.4	0.5	93.8	75.3
HOUGHTON	0.3	0.4	0.4	0.4	95.0	70.4
HURON	0.4	0.4	0.4	0.5	93.4	89.0
INGHAM	3.0	3.0	3.0	2.7	96.2	57.3
IONIA	0.4	0.5	0.5	0.6	94.6	69.9
IOSCO	0.3	0.3	0.3	0.5	93.0	92.0
IRON	0.2	0.2	0.2	0.2	95.0	85.6
ISABELLA	0.4	0.5	0.5	0.6	95.0	69.7
JACKSON	1.6	1.5	1.5	1.6	95.0	67.6
KALAMAZOO	2.4	2.4	2.4	2.4	96.2	61.7
KALKASKA	0.1	0.1	0.1	0.1	91.2	62.2
KENT	5.3	5.3	5.3	5.9	96.2	70.2
KEWEENAW	0.0	0.0	0.0	0.0	95.0	2.0
LAKE	0.1	0.1	0.1	0.1	90.0	54.9
LAPEER	0.8	0.7	0.7	0.8	94.6	71.9
LEELANAU	0.1	0.2	0.2	0.2	96.6	73.3
LENAWEE	1.0	0.9	0.9	1.1	95.4	76.1
LIVINGSTON	1.1	1.1	1.1	1.0	96.2	57.6
LUCE	0.1	0.1	0.1	0.0	90.8	43.3
MACKINAC	0.1	0.1	0.1	0.1	90.8	40.9

MACOMB	7.7	7.5	7.7	7.7	98.2	63.0
MANISTEE	0.2	0.3	0.3	0.4	94.2	90.5
MARQUETTE	0.8	0.7	0.7	0.8	95.8	72.4
MASON	0.3	0.3	0.3	0.4	93.8	74.5
MECOSTA	0.3	0.4	0.4	0.4	94.6	73.3
MENOMINEE	0.3	0.3	0.3	0.3	93.2	62.1
MIDLAND	0.8	0.8	0.8	0.9	96.6	72.9
MISSAUKEE	0.1	0.1	0.1	0.2	94.2	93.4
MONROE	1.3	1.4	1.4	1.4	95.8	64.3
MONTCALM	0.6	0.6	0.5	0.7	91.6	78.6
MONTMORENCY	0.1	0.1	0.1	0.0	88.8	27.8
MUSKEGON	1.7	1.7	1.7	1.9	94.2	71.2
NEWAYGO	0.4	0.4	0.4	0.5	92.2	72.0
OAKLAND	12.0	11.7	12.0	13.3	97.8	70.0
OCEANA	0.2	0.3	0.2	0.2	92.2	58.2
OGEMAW	0.2	0.2	0.2	0.3	89.6	107.5
ONTONAGON	0.0	0.1	0.1	0.1	93.4	67.1
OSCEOLA	0.2	0.2	0.2	0.3	93.4	84.0
OSCODA	0.1	0.1	0.1	0.1	68.4	80.5
OTSEGO	0.2	0.2	0.2	0.2	94.2	71.8
OTTAWA	1.8	1.8	1.8	2.6	97.0	90.8
PRESQUE ISLE	0.2	0.2	0.2	0.2	93.8	60.9
ROSCOMMON	0.2	0.3	0.3	0.4	93.4	111.4
SAGINAW	2.2	2.2	2.3	2.1	96.2	57.8
ST CLAIR	1.6	1.5	1.5	1.6	95.0	64.5
ST JOSEPH	0.7	0.7	0.6	0.7	92.6	69.4

SANILAC	0.4	0.5	0.4	0.6	93.8	78.3
SCHOOLCRAFT	0.1	0.1	0.1	0.1	93.0	53.6
SHIAWASSEE	0.7	0.7	0.7	0.9	95.0	78.8
TUSCOLA	0.6	0.6	0.6	0.7	94.6	76.3
VAN BUREN	0.8	0.8	0.7	0.8	92.6	63.8
WASHTENAW	3.0	3.0	3.0	2.9	97.0	59.6
WAYNE	23.2	23.4	23.2	16.7	94.6	45.4
WEXFORD	0.2	0.3	0.3	0.4	92.2	83.4

Source: Survey Sampling Inc.

APPENDIX B:

TELEPHONE SURVEY QUESTIONNIARE

A1 Compared to other environmental issues, how important to you is the disposal of wastes?

Would you say it is the least important environmental issue, one of the less important, one of the more important, or the most important environmental issue?

<1> LEAST IMPORTANT
<2> ONE OF THE LESS IMPORTANT
<3> ONE OF THE MORE IMPORTANT
<4> MOST IMPORTANT

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

A2 How concerned are you about waste disposal as a local issue?

Would you say you are very concerned, somewhat concerned, not very concerned, or not concerned at all?

<1> VERY CONCERNED
<2> SOMEWHAT CONCERNED
<3> NOT VERY CONCERNED
<4> NOT CONCERNED AT ALL

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

A3 How familiar are you with recycling?

Would you say very familiar, somewhat familiar, not very familiar, or not familiar at all?

<1> VERY FAMILIAR
<2> SOMEWHAT FAMILIAR
<3> NOT VERY FAMILIAR
<4> NOT FAMILIAR AT ALL

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

A4 As far as you know, does your community have any recycling efforts currently under way?

<1> YES
<5> NO [goto B1]

<8> DON'T KNOW [goto B1]
<9> REFUSED/NO ANSWER [goto B1]

A5 Does your community have voluntary drop-off points for recyclable materials?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

A6 (Does your community have . . .)

Regular curbside pick-up of recyclable materials?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

A7 (Does your community have . . .)

a recycling plant?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

A8 Does your community have any other facilities or programs for recycling?

<1> YES (SPECIFY)
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

B1 During the past 12 months, have you heard or read about the possibility of recycling . . .

aluminum cans, or glass and plastic bottles with deposits?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

B2 (During the past 12 months, have you heard or read about the possibility of recycling . . .)

Other cans with no deposits?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

B3 (During the past 12 months, have you heard or read about the possibility of recycling . . .)

Other glass containers with no deposits?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

B4 (During the past 12 months, have you heard or read about the possibility of recycling . . .)

Other plastic containers with no deposits?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

B5 (During the past 12 months, have you heard or read about the possibility of recycling . . .)

the plastic bags used to cover dry cleaning?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

B6 (During the past 12 months, have you heard or read about the possibility of recycling . . .)

Other plastic bags (such as shopping bags)?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

B7 (During the past 12 months, have you heard or read about the possibility of recycling . . .)

Newspapers[normal]?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

B8 (During the past 12 months, have you heard or read about the possibility of recycling . . .)

Magazines, catalogues, and other colored papers?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

B9 (During the past 12 months, have you heard or read about the possibility of recycling . . .)

Paperboard or cardboard boxes (such as cereal boxes)?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

B10 (During the past 12 months, have you heard or read about the possibility of recycling . . .)

Scrap metals (all metals)?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

B11 (During the past 12 months, have you heard or read about the possibility of recycling . . .)

Automobile batteries[normal]?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

B12 (During the past 12 months, have you heard or read about the possibility of recycling . . .)

Household batteries[normal]?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

B13 (During the past 12 months, have you heard or read about the possibility of recycling . . .)

Motor oil[normal]?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

B14 (During the past 12 months, have you heard or read about the possibility of recycling . . .)

Tires[normal]?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

C1 Do you separate items with return deposits such as aluminum cans, glass and plastic bottles from your garbage?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

C2 (Do you separate . . .)

Other cans with no deposits (from your garbage)?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

C3 (Do you separate . . .)

Other glass containers with no deposits (from your garbage?)

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

C4 (Do you separate . . .)

Other plastic containers with no deposits (from your garbage)(such as foam cups and milk jugs)?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

C5 (Do you separate . . .)

Plastic bags (from your garbage)(such as shopping bags)?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

C6 (Do you separate . . .)

Newspapers (from your garbage)?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

C7 (Do you separate . . .)

Magazines, catalogues, and other colored papers (from your garbage)?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

C8 (Do you separate . . .)

Paperboard or cardboard boxes (from your garbage) (such as cereal boxes)?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

C9 (Do you separate . . .)

Scrap metals (from your garbage) (all metals)?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

C10 (Do you separate . . .)

Auto batteries (from your garbage)?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

C11 (Do you separate . . .)

Household batteries (from your garbage)?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

C12 (Do you separate . . .)

Motor oil (from your garbage)?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

C13 (Do you separate . . .)

Tires (from your garbage)?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

C14 Are there any other materials that you separate for recycling from the rest of your garbage?

<1> YES (SPECIFY)
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

D1 If curbside pick-up of recyclable materials were available in your community, would you be willing to separate cans with no deposits from your garbage?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

D2 (If curbside pick-up were available, would you be willing to separate . . .)

Glass containers with no deposit? (From your garbage)

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

D3 (If curbside pick-up were available, would you be willing to separate . . .)

Plastic containers with no deposit? (From your garbage)

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

D4 (If curbside pick-up were available, would you be willing to separate . . .)

Plastic food wraps or sandwich bags? (From your garbage)

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

D5 (If curbside pick-up were available, would you be willing to separate . . .)

Plastic bags, such as shopping bags? (From your garbage)

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

D6 (If curbside pick-up were available, would you be willing to separate . . .)

Newspapers? (From your garbage)

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

D7 (If curbside pick-up were available, would you be willing to separate . . .)

Magazines, catalogues, and other colored papers?
(From your garbage)

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

D8 (If curbside pick-up were available, would you be willing to separate . . .)

Paperboard or cardboard boxes? (From your garbage)(such as cereal boxes)

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

D9 (If curbside pick-up were available, would you be willing to separate . . .)

Scrap metals? (From your garbage)(all metals)

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

D10 (If curbside pick-up were available, would you be willing to separate . . .)

Automobile batteries? (From your garbage)

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

D11 (If curbside pick-up were available, would you be willing to separate . . .)

Household batteries? (From your garbage)

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

D12 (If curbside pick-up were available, would you be willing to separate . . .)

Motor oil? (From your garbage)

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

D13 (If curbside pick-up were available, would you be willing to separate . . .)

Tires? (From your garbage)

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

D14 Are there any other materials that you would be willing to separate from your garbage for recycling (if curbside pick-up were available)?

<1> YES (SPECIFY)
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

E1 When selecting products, how often do you look to see whether or not they are made with recycled materials?

Would you say never, sometimes, frequently, or always?

<1> NEVER
<2> SOMETIMES
<3> FREQUENTLY
<4> ALWAYS

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

E2 When selecting products, how often do you look to see whether or not the packaging is made with recycled materials?

Would you say never, sometimes, frequently, or always?

<1> NEVER
<2> SOMETIMES
<3> FREQUENTLY
<4> ALWAYS

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

E3 Have you ever used products made from recycled materials?

<1> YES [goto F1]
<5> NO

<8> DON'T KNOW [goto F1]
<9> REFUSED/NO ANSWER [goto F1]

E4 Why haven't you used products made from recycled materials?

<1> LACK INFORMATION
<2> NOT AVAILABLE IN STORE
<3> INFERIOR QUALITY
<4> HIGHER PRICE
<5> PREFER VIRGIN (NEW) PRODUCTS

<0> OTHER (SPECIFY)
<98> DON'T KNOW [goto F1]
<99> REFUSED/NO ANSWER [goto F1]

F1 If a product made of recycled materials were 10% lower in quality but also 10% lower in price than the same product made from new materials. . .

Would you definitely buy the recycled product, probably buy the recycled product, probably buy the new product, or definitely buy the new product?

<1> DEFINITELY BUY RECYCLED PRODUCT
<2> PROBABLY BUY RECYCLED PRODUCT
<3> DOESN'T MATTER/MAKES NO DIFF.
<4> PROBABLY BUY NEW PRODUCT
<5> DEFINITELY BUY NEW PRODUCT
<8> DON'T KNOW
<9> REFUSED/NO ANSWER

F2 If a product made of recycled materials were 10% lower in quality but had the same price as the product made from new materials. . .

Would you definitely buy the recycled product, probably buy the recycled product, probably buy the new product,or definitely buy the new product?

<1> DEFINITELY BUY RECYCLED PRODUCT
<2> PROBABLY BUY RECYCLED PRODUCT
<3> DOESN'T MATTER/MAKES NO DIFF.
<4> PROBABLY BUY NEW PRODUCT
<5> DEFINITELY BUY NEW PRODUCT

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

F3 If a product made of recycled materials were 10% lower in quality but cost 10% more than the same product made from new materials. . .

(Would you definitely buy the recycled product, probably buy the recycled product, probably buy the new product, or definitely buy the new product?)

<1> DEFINITELY BUY RECYCLED PRODUCT
<2> PROBABLY BUY RECYCLED PRODUCT
<3> DOESN'T MATTER/MAKES NO DIFF.
<4> PROBABLY BUY NEW PRODUCT
<5> DEFINITELY BUY NEW PRODUCT

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

F4 If a product made of recycled materials was the same in quality and cost 10% less than the same product made from new materials. . .

(Would you definitely buy the recycled product, probably buy the recycled product, probably buy the new product, or definitely buy the new product?)

<1> DEFINITELY BUY RECYCLED PRODUCT
<2> PROBABLY BUY RECYCLED PRODUCT
<3> DOESN'T MATTER/MAKES NO DIFF.
<4> PROBABLY BUY NEW PRODUCT
<5> DEFINITELY BUY NEW PRODUCT

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

F5 If a product made of recycled materials was the same in quality and cost the same as the same product made from new materials. . .

(Would you definitely buy the recycled product, probably buy the recycled product, probably buy the new product, or definitely buy the new product?)

<1> DEFINITELY BUY RECYCLED PRODUCT
<2> PROBABLY BUY RECYCLED PRODUCT
<3> DOESN'T MATTER/MAKES NO DIFF.
<4> PROBABLY BUY NEW PRODUCT
<5> DEFINITELY BUY NEW PRODUCT

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

F6 If a product made of recycled materials was the same in quality but cost 10% more than the same product made from new materials. . .

(Would you definitely buy the recycled product, probably buy the recycled product, probably buy the new product, or definitely buy the new product?)

<1> DEFINITELY BUY RECYCLED PRODUCT
<2> PROBABLY BUY RECYCLED PRODUCT
<3> DOESN'T MATTER/MAKES NO DIFF.
<4> PROBABLY BUY NEW PRODUCT
<5> DEFINITELY BUY NEW PRODUCT

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

F7 If a product made of recycled materials were 10% better in quality and cost 10% less than the same product made from new materials. . .

(Would you definitely buy the recycled product, probably buy the recycled product, probably buy the new product, or definitely buy the new product?)

<1> DEFINITELY BUY RECYCLED PRODUCT
<2> PROBABLY BUY RECYCLED PRODUCT
<3> DOESN'T MATTER/MAKES NO DIFF.
<4> PROBABLY BUY NEW PRODUCT
<5> DEFINITELY BUY NEW PRODUCT

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

F8 If a product made of recycled materials were 10% better in quality and cost the same as the product made from new materials. . .

(Would you definitely buy the recycled product, probably buy the recycled product, probably buy the new product, or definitely buy the new product?)

<1> DEFINITELY BUY RECYCLED PRODUCT
<2> PROBABLY BUY RECYCLED PRODUCT
<3> DOESN'T MATTER/MAKES NO DIFF.
<4> PROBABLY BUY NEW PRODUCT
<5> DEFINITELY BUY NEW PRODUCT

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

F9 If a product made of recycled materials were 10% better in quality but also cost 10% more than the product made from new materials. . .

(Would you definitely buy the recycled product, probably buy the recycled product, probably buy the new product, or definitely buy the new product?)

<1> DEFINITELY BUY RECYCLED PRODUCT
<2> PROBABLY BUY RECYCLED PRODUCT
<3> DOESN'T MATTER/MAKES NO DIFF.
<4> PROBABLY BUY NEW PRODUCT
<5> DEFINITELY BUY NEW PRODUCT

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

G1 Compared to products made from new aluminum, how would you rate the quality of products made from recycled aluminum?

Would you say they are lower quality, higher quality, or about the same?

<1> LOWER QUALITY
<2> ABOUT THE SAME [goto G2]
<3> HIGHER QUALITY [goto G2]

<8> DON'T KNOW [goto G2]
<9> REFUSED/NO ANSWER [goto G2]

G1a Why do you feel products made from recycled aluminum are of lower quality?

G2 Compared to products made from new glass, how would you rate the quality of products made from recycled glass?

(Would you say they are lower quality, higher quality, or about the same?)

<1> LOWER QUALITY
<2> ABOUT THE SAME [goto G3]
<3> HIGHER QUALITY [goto G3]

<8> DON'T KNOW [goto G3]
<9> REFUSED/NO ANSWER [goto G3]

G2a Why do you feel products made from recycled glass are of lower quality?

G3 Compared to products made from new paper, how would you rate the quality of products made from recycled paper?

(Would you say they are lower quality, higher quality, or about the same?)

<1> LOWER QUALITY
<2> ABOUT THE SAME [goto G4]
<3> HIGHER QUALITY [goto G4]

<8> DON'T KNOW [goto G4]
<9> REFUSED/NO ANSWER [goto G4]

G3a Why do you feel products made from recycled paper are of lower quality?

G4 Compared to products made from new plastic, how would you rate the quality of products made from recycled plastic?

(Would you say they are lower quality, higher quality, or about the same?)

<1> LOWER QUALITY
<2> ABOUT THE SAME [goto G5]
<3> HIGHER QUALITY [goto G5]

<8> DON'T KNOW [goto G5]
<9> REFUSED/NO ANSWER [goto G5]

G4a Why do you feel products made from recycled plastic are of lower quality?

G5 Compared to products, such as food cans, made from new steel, how would you rate the quality of products made from recycled steel?

(Would you say they are lower quality, higher quality, or about the same?)

<1> LOWER QUALITY
<2> ABOUT THE SAME [goto H0]
<3> HIGHER QUALITY [goto H0]

<8> DON'T KNOW [goto H0]
<9> REFUSED/NO ANSWER [goto H0]

G5a Why do you feel products made from recycled steel are of lower quality?

H0 In general, compared to those products made from all new materials, how would you rate the quality of products made from recycled materials?

Would you say they are lower in quality, higher in quality, or are they about the same?

<1> LOWER QUALITY
<2> ABOUT THE SAME [goto I0]
<3> HIGHER QUALITY

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

H1 Compared to those made from all new materials, how would you rate the quality of office paper goods made from recycled materials?

Would you say they are lower quality, higher quality, or about the same?

<1> LOWER QUALITY
<2> ABOUT THE SAME
<3> HIGHER QUALITY

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

H2 Compared to those made from all new materials, how would you rate the quality of writing paper made from recycled materials?

(Would you say they are lower quality, higher quality, or about the same?)

<1> LOWER QUALITY
<2> ABOUT THE SAME
<3> HIGHER QUALITY

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

H3 (Compared to those made from all new materials,) how would you rate the quality of greeting cards made from recycled materials?

(Would you say they are lower quality, higher quality, or about the same?)

<1> LOWER QUALITY
<2> ABOUT THE SAME
<3> HIGHER QUALITY

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

H4 (Compared to those made from all new materials,) how would you rate the quality of napkins, tissue paper, and paper towels made from recycled materials?

(Would you say they are lower quality, higher quality, or about the same?)

<1> LOWER QUALITY
<2> ABOUT THE SAME
<3> HIGHER QUALITY

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

H5 (Compared to that made from all new materials,) how would you rate the quality of toilet paper made from recycled materials?

(Would you say it is lower quality, higher quality, or about the same?)

<1> LOWER QUALITY
<2> ABOUT THE SAME
<3> HIGHER QUALITY

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

H6 (Compared to those made from all new materials,) how would you rate the quality of glassware made from recycled materials?

(Would you say they are lower quality, higher quality, or about the same?)

<1> LOWER QUALITY
<2> ABOUT THE SAME
<3> HIGHER QUALITY

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

H7 (Compared to that made from all new materials,) how would you rate the quality of carpeting made from recycled materials?

(Would you say it is lower quality, higher quality, or about the same?)

<1> LOWER QUALITY
<2> ABOUT THE SAME
<3> HIGHER QUALITY

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

H8 (Compared to those made from all new materials,) how would you rate the quality of plastic benches, picnic tables, tables and chairs made from recycled materials?

(Would you say they are lower quality, higher quality, or about the same?)

<1> LOWER QUALITY
<2> ABOUT THE SAME
<3> HIGHER QUALITY

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

H9 (Compared to those made from all new materials,) how would you rate the quality of plastic floor coverings, runners, and plastic sheeting made from recycled materials?

(Would you say they are lower quality, higher quality, or about the same?)

<1> LOWER QUALITY
<2> ABOUT THE SAME
<3> HIGHER QUALITY

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

H10 (Compared to those made from all new materials,) how would you rate the quality of plastic boards, planks, posts, and fences made from recycled materials?

(Would you say they are lower quality, higher quality, or about the same?)

<1> LOWER QUALITY
<2> ABOUT THE SAME
<3> HIGHER QUALITY

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

H11 (Compared to those made from all new materials,) how would you rate the quality of household construction materials (such as roofing shingles and tar paper) made from recycled materials?

(Would you say they are lower quality, higher quality, or about the same?)

<1> LOWER QUALITY
<2> ABOUT THE SAME
<3> HIGHER QUALITY

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

I0 In general, compared to the cleanliness or sanitation of food packaging made from only new materials, how concerned are you about the sanitation or cleanliness of food packaging made with recycled materials?

Would you say very concerned, somewhat concerned, not very concerned, or not concerned at all?

<1> VERY CONCERNED
<2> SOMEWHAT CONCERNED
<3> NOT VERY CONCERNED
<4> NOT CONCERNED AT ALL [goto J0]

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

I1 If cereal packages and other paper food packages were made from recycled materials, how concerned would you be about their sanitation or cleanliness?

Would you say very concerned, somewhat concerned, not very concerned, or not concerned at all?

<1> VERY CONCERNED
<2> SOMEWHAT CONCERNED
<3> NOT VERY CONCERNED
<4> NOT CONCERNED AT ALL

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

I2 If glass food jars were made from recycled materials, how concerned would you be about their sanitation or cleanliness?

(Would you say very concerned, somewhat concerned, not very concerned, or not concerned at all?)

<1> VERY CONCERNED
<2> SOMEWHAT CONCERNED
<3> NOT VERY CONCERNED
<4> NOT CONCERNED AT ALL

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

I3 If plastic food containers were made from recycled

materials, how concerned would you be about their sanitation or cleanliness?

(Would you say very concerned, somewhat concerned, not very concerned, or not concerned at all?)

<1> VERY CONCERNED
<2> SOMEWHAT CONCERNED
<3> NOT VERY CONCERNED
<4> NOT CONCERNED AT ALL

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

I4 If steel food cans were made from recycled materials, how concerned would you be about their sanitation or cleanliness?

(Would you say very concerned, somewhat concerned, not very concerned, or not concerned at all?)

<1> VERY CONCERNED
<2> SOMEWHAT CONCERNED
<3> NOT VERY CONCERNED
<4> NOT CONCERNED AT ALL

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

I5 If aluminum beverage cans were made from recycled materials, how concerned would you be about their sanitation or cleanliness?

(Would you say very concerned, somewhat concerned, not very concerned, or not concerned at all?)

<1> VERY CONCERNED
<2> SOMEWHAT CONCERNED
<3> NOT VERY CONCERNED
<4> NOT CONCERNED AT ALL

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

I6 If glass beverage bottles were made from recycled materials, how concerned would you be about their sanitation or cleanliness?

(Would you say very concerned, somewhat concerned, not very concerned, or not concerned at all?)

<1> VERY CONCERNED
<2> SOMEWHAT CONCERNED
<3> NOT VERY CONCERNED
<4> NOT CONCERNED AT ALL

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

I7 If plastic beverage bottles were made from recycled materials, how concerned would you be about their sanitation or cleanliness?

(Would you say very concerned, somewhat concerned, not very concerned, or not concerned at all?)

<1> VERY CONCERNED
<2> SOMEWHAT CONCERNED
<3> NOT VERY CONCERNED
<4> NOT CONCERNED AT ALL

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

I8 If plastic wraps or plastic bags for food items were made from recycled materials, how concerned would you be about their sanitation or cleanliness?

(Would you say very concerned, somewhat concerned, not very concerned, or not concerned at all?)

<1> VERY CONCERNED
<2> SOMEWHAT CONCERNED
<3> NOT VERY CONCERNED
<4> NOT CONCERNED AT ALL

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

J0 In general, compared to the sanitation or cleanliness of those made from only new materials, how concerned are you about the sanitation or cleanliness of non-food packaging made from recycled materials?

Would you say very concerned, somewhat concerned, not very concerned, or not concerned at all?

<1> VERY CONCERNED
<2> SOMEWHAT CONCERNED
<3> NOT VERY CONCERNED
<4> NOT CONCERNED AT ALL [goto K1]

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

J1 If the glass containers holding detergents and cleaning solutions were made from recycled glass, how concerned would you be about their sanitation or cleanliness?

(Would you say very concerned, somewhat concerned, not very concerned, or not concerned at all?)

<1> VERY CONCERNED
<2> SOMEWHAT CONCERNED
<3> NOT VERY CONCERNED
<4> NOT CONCERNED AT ALL

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

J2 If the paper containers holding detergents and cleaning solutions were made from recycled paper, how concerned would you be about their sanitation or cleanliness?

(Would you say very concerned, somewhat concerned, not very concerned, or not concerned at all?)

<1> VERY CONCERNED
<2> SOMEWHAT CONCERNED
<3> NOT VERY CONCERNED
<4> NOT CONCERNED AT ALL

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

J3 If the plastic containers holding detergents and cleaning solutions were made from recycled plastic, how concerned would you be about their sanitation or cleanliness?

(Would you say very concerned, somewhat concerned, not very concerned, or not concerned at all?)

<1> VERY CONCERNED
<2> SOMEWHAT CONCERNED
<3> NOT VERY CONCERNED
<4> NOT CONCERNED AT ALL

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

J4 If the corrugated cardboard cartons holding non-food items were made from recycled materials, how concerned would you be about their sanitation or cleanliness?

(Would you say very concerned, somewhat concerned, not very concerned, or not concerned at all?)

<1> VERY CONCERNED
<2> SOMEWHAT CONCERNED
<3> NOT VERY CONCERNED
<4> NOT CONCERNED AT ALL

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

J5 If paper shopping bags were made from recycled materials, how concerned would you be about their sanitation or cleanliness?

(Would you say very concerned, somewhat concerned, not very concerned, or not concerned at all?)

<1> VERY CONCERNED
<2> SOMEWHAT CONCERNED
<3> NOT VERY CONCERNED
<4> NOT CONCERNED AT ALL

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

J6 If plastic shopping bags were made from recycled plastics, how concerned would you be about their sanitation or cleanliness?

(Would you say very concerned, somewhat concerned, not very concerned, or not concerned at all?)

<1> VERY CONCERNED
<2> SOMEWHAT CONCERNED
<3> NOT VERY CONCERNED
<4> NOT CONCERNED AT ALL

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

J7 If plastic garbage bags were made from recycled plastics, how concerned would you be about their sanitation or cleanliness?

(Would you say very concerned, somewhat concerned, not very concerned, or not concerned at all?)

<1> VERY CONCERNED
<2> SOMEWHAT CONCERNED
<3> NOT VERY CONCERNED
<4> NOT CONCERNED AT ALL

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

K1 If it would encourage more recycling, would you be willing to pay more for products containing recycled materials than for products containing only new materials?

<1> YES
<5> NO [goto K3]

<8> DON'T KNOW [goto K3]
<9> REFUSED/NO ANSWER [goto K3]

K2 In general, how much more would you be willing to pay for a product containing recycled materials?

Would you say 1 to 5% more, 6 to 10% more, 11 to 15% more, 16 to 20% more, 21 to 25% more, or 26% or higher?

<1> 1% TO 5%
<2> 6% TO 10%
<3> 11% TO 15%
<4> 16% TO 20%
<5> 21% TO 25%
<6> 26% OR MORE

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

K3 If it would encourage more recycling, would you be willing to pay more for products packaged in containers made from recycled materials than for products packaged in containers made from only new materials?

<1> YES
<5> NO [goto L1]

<8> DON'T KNOW [goto L1]
<9> REFUSED/NO ANSWER [goto L1]

K4 In general, how much more would you be willing to pay for products packaged in containers made from recycled materials?

Would you say 1 to 5% more, 6 to 10% more, 11 to 15% more, 16 to 20% more, 21 to 25% more, or 26% or higher?

<1> 1% TO 5%
<2> 6% TO 10%
<3> 11% TO 15%
<4> 16% TO 20%
<5> 21% TO 25%
<6> 26% OR MORE

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

L1 In your opinion, should government provide technical or business assistance to private manufacturers to produce packaging or products from recycled materials?

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

L2 (In your opinion, should government provide) start-up assistance (to private manufacturers that will produce packaging or products from recycled materials?)

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

L3 (In your opinion, should government provide) low interest loans (to private manufacturers that will produce packaging or products from recycled materials?)

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

L4 (In your opinion, should government provide) tax breaks or tax abatement (to private manufacturers that will produce packaging or products from recycled materials?)

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

L5 (In your opinion, should government provide) subsidies for leasing of sites or buildings (to private manufacturers that will produce packaging or products from recycled materials?)

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

L6 (In your opinion, should government provide) grants for research and development (to private manufacturers that will produce packaging or products from recycled materials?)

<1> YES
<5> NO

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

L7 Do you think government should provide any other kind of public assistance to private manufacturers producing packaging or products made from recycled materials?

<1> YES
<5> NO [goto L9]

<8> DON'T KNOW [goto L9]
<9> REFUSED/NO ANSWER [goto L9]

L8 What other kinds of assistance should government provide?

<0> COMMENT (SPECIFY)
<98> DON'T KNOW
<99> REFUSED/NO ANSWER

L9 When you answered the last few questions, were you thinking of local government, state government or the federal government?

<1> LOCAL GOVERNMENT
<2> STATE GOVERNMENT
<3> FEDERAL GOVERNMENT
<4> COMBINATIONS OF LOCAL, STATE, AND FEDERAL

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

M1 From which of the following do you obtain most of your information about the quality and safety of products you purchase?

Shopping guide, the newspaper, magazines, television, radio, direct mail advertisements and fliers, or some other source?

<1> SHOPPING
<2> NEWSPAPER
<3> MAGAZINES
<4> TELEVISION
<5> RADIO
<6> DIRECT MAIL ADVERTISEMENTS AND FLIERS

<0> OTHER (SPECIFY)

<98> DON'T KNOW
<99> REFUSED/NO ANSWER

N1 The last few questions concern the background of the people we interview. These will be used for statistical purposes only and to make certain we accurately represent Michigan adults. Any information will be kept strictly confidential.

Are you male or female?

<1> MALE
<2> FEMALE

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

N2 What is your age?

<1> 18 TO 24 YEARS
<2> 25 TO 34 YEARS
<3> 35 TO 49 YEARS
<4> 50 TO 64 YEARS
<5> 65 YEARS OR OLDER

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

N3 Would you describe the community you live in as a city, a suburb, or a rural area?

<1> CITY
<2> SUBURB
<3> RURAL AREA

<8> DON'T KNOW
<9> REFUSED/ NO ANSWER

N4 What is the highest grade or year of school that you have completed?

<1> 6TH GRADE OR LESS
<2> 7TH - 12TH GRADE
<3> COMPLETED HIGH SCHOOL OR GED
<4> SOME COLLEGE, TRADE OR VOCATIONAL SCHOOL
<5> COMPLETED COLLEGE
<6> ADVANCED DEGREE

<8> DON'T KNOW
<9> REFUSED/NO ANSWER

N5 What is your present employment situation?

Are you employed full-time, part-time, a full-time homemaker, unemployed, retired, or a full-time student?

<1> EMPLOYED FULL-TIME
<2> EMPLOYED PART-TIME
<3> FULL-TIME HOMEMAKER
<4> UNEMPLOYED
<5> RETIRED
<6> FULL-TIME STUDENT

<0> OTHER (SPECIFY)
<8> DON'T KNOW
<9> REFUSED/NO ANSWER

N6 Finally, we need to know the general range of incomes of all the people we interview. Thinking about your family's total annual income from all sources (including your job, before taxes), did your family receive $30,000 or more in 1989?

<3> YES (go to N6a)
<0> NO (go to N6d)

<8> DON'T KNOW (go to ND)
<9> REFUSED/NO ANSWER (go to ND)

N6a Was it $45,000 or more?

<4> YES
<3> NO OR DON'T KNOW/REFUSED (go to ND)

N6b Was it $60,000 or more?

<5> YES
<4> NO OR DON'T KNOW/REFUSED (go to ND])

N6c Was it $75,000 or more?

<6> YES (go to ND)
<5> NO OR DON'T KNOW/REFUSED (go to ND)

N6d Was it less than $15,000?

<1> YES
<2> NO OR DON'T KNOW/REFUSED

ND That's all the questions I have. I want to thank you for completing this interview.

APPENDIX C:

RESPONSES TO OPEN-ENDED QUESTIONS

A2 : I should be concerned more.
A2 : Fuel contamination in our water, products were found in it.
A2 : We had to go to court, and suffered $40,000.
A2 : Context is vague on this question. MTY. Any state level.
A2 : Important, it varies.

A4 : Just moved here a week ago.
A4 : Township mostly city, not so much.
A4 : They tried a month or so ago, but now there is nothing.
A4 : Grocery store encourges to use bags again and again.
A4 : Not in our neighborhood.
A4 : Not enough recycling here, and we don't any bins, not advertised.
A4 : Enough and not enough recycling.

A5 : They just started a recycling center about a year ago.
A5 : Don't have a car, certain Saturdays.
A5 : Mostly paper and plastics.
A5 : They built a recycling center, I don't know what goes on there.
A5 : The county next to us does.
A5 : It's in the works.
A5 : We aren't actually a city we are a township.

A6 : We will have it after the 1st of the year.
A6 : In parts of town.
A6 : Not sure,I live in an apartment.
A6 : They are planning on it.
A6 : Independent contractors.
A6 : Some newspapers.
A6 : Stores try to be conscious, but are not.
A6 : Paper products are a lot more expensive.

A7 : With another community we share a plant.
A7 : We're working on one.
A7 : Close by, we are outside of Bay city.
A7 : People save trees, but they only plant them to cut down for Christmas and they are also fire hazards.
A7 : Still discussing it.

A8 : We recycle paper at work.
A8 : We are going to start them, curbside pick up.
A8 : They are working on it.
A8 : Don't know.

A8 : Telephone book drop off, used to be newspaper drop-off.
A8 : Through the sanitation service but I don't know if they do anything else.
A8 : Just drop off places.
A8 : There is a recycling company that is in town, they charge you to take recyclable materials to them.
A8 : Can't remember.
A8 : I'm sure they do, but I don't know what they are.
A8 : We are twin cities and they have one in the city next to us.
A8 : All I know is what I read in the paper and that it is the drop off part.
A8 : They are working on some.
A8 : They have one that will take affect Jan 1. Curbside pick up.
A8 : They have some proposed like batteries and things like that.
A8 : Don't know what.
A8 : Son-in-law has business that recycles plastic.
A8 : Small community.
A8 : There is something, but I do not know what it is.
A8 : I don't know.
A8 : I think so, if we bring back our bags for groceries they give us so much money for that.
A8 : They have a compost, to take shrubbery, leaves, etc.
A8 : There's a cardboard place in town.
A8 : Paper and cans.
A8 : A private group tried to influence people to recycle, they defeated it.
A8 : They have a lot of recycling bins.
A8 : Telephone books and Christmas trees.
A8 : Goodwill has a pick up for plastic and glass and paper.
A8 : 4-H kids do a lot with paper and cardboard products.
A8 : I don't know.
A8 : Goodwill.

B1 : This question does not make sense.

B2 : Need biogradeable bottles.

B4 : Not as far as antifreeze or rubbing alcohol.

B5 : At Krogers there is a box to recycle your bags.
B5 : You are confusing me, I read a lot of things about it.

B6 : Code is on bottom of bag.

B7 : That has been going on for sometime.
B7 : Paper re-clean place.
B7 : They have a drive somewhere, I do not know what for.

B8 : Generally.

B9 : Haven't heard anything about our community recycling cardboard.
B9 : Do not deal with these because I am on a farm.

B10 : In companies.

B11 : I am aware they do take them back.
B11 : Gas station.
B11 : The only reason I know is because within the last six months I went and asked them when I took the newspapers.

B12 : I use rechargables.

B13 : To the garage.

B14 : If entails retiring existing tires.
B14 : I know it can be done, but where?

C1 : Return the cans to the store.

C2 : Did, but piled up and couldn't get it there.
C2 : Sometimes.
C2 : Separate only to put in dump, separate only to dispose and to recycle.
C2 : I do not buy any other cans.

C3 : We use them to the maximum limit.
C3 : Anything that can not be burned.
C3 : Sometimes.
C3 : Not in my area as of now.
C3 : Need a container for them to pick it up.

C4 : Re-clean now takes glass.
C4 : School things for the kids.
C4 : Milk cartons.
C4 : Sometimes.

C5 : I use them.
C5 : I use them for trash and diaper pails.
C5 : Return grocery bags.
C5 : Used for kitty litter and garbage bags.
C5 : Separate them all and have garbage men pick them up for twenty dollars a month.
C5 : Only paper.
C5 : I don't do it, but you are into it.

C6 : We do not get.
C6 : Once in a while.

C6 : We don't get a newspaper.
C6 : We use them for different things, around the house for cleaning windows and such.
C6 : Whatever we do not use.
C6 : Sometimes.
C6 : There is no place to take it.
C6 : I don't have any.
C6 : Yes and no, sometimes I do and sometimes I don't.
C6 : Sometimes I take them to a store, not sure what they do.
C6 : I burn them.
C6 : Most of the time.
C6 : Sometimes.

C7 : No one can tell me where to take it.
C7 : Mainly I go after newspapers.
C7 : I don't know what to do with them.
C7 : Give them to hospitals and neighbors.
C7 : Do the magazines and catalogues but not the other things.

C8 : Won't accept it.
C8 : They would not take it.
C8 : We burn those in our wood burner.
C8 : I re-use.

C9 : Do not have any.
C9 : Don't have any.
C9 : I don't have any.
C9 : Like a can?
C9 : Do not have.
C9 : Cans and that I recycle.
C9 : I do not have that much.
C9 : We do not have too much of those.

C10 : Don't know where to take them.
C10 : Don't have any.
C10 : At gas station.
C10 : I do not know where to take it.
C10 : Don't throw too many away.
C10 : If I had one, I may take them to a junk yard.
C10 : I don't have an auto.
C10 : Haven't changed mine yet.
C10 : I have never handled any.
C10 : Not sure, don't remember throwing one away(asks husband, he doesn't know.)
C10 : We haven't run into the use of those. We really don't have to separate them.
C10 : The store does it.

C11 : In the past we have dropped them off.
C11 : Rechargeable and my husband collects them.

C12 : Don't have.
C12 : They do it at the shop.
C12 : Not done at home.
C12 : I don't have a car.
C12 : I think it is done, but I do not handle it.
C12 : I have it changed.
C12 : We never change our own oil so we aren't running into that.
C12 : I have that done at mechanics.

C13 : Do not have any.
C13 : I don't have any tires.
C13 : Keep them at station.
C13 : Do not have, we trade them.
C13 : I don't have tires.
C13 : Place that does it does.
C13 : We just turn cars in and we don't have to take.
C13 : I do not have.

C14 : Anything that is burn-able , don't throw garbage out.
C14 : We separate things, but we don't know what to do with them.
C14 : Paint thinners, finishes, aerosol cans that contain paint.
C14 : Aerosol cans, because they might cause cancer.
C14 : Aluminum foil (ao) anything that doesn't burn; I put them separately.
C14 : Tinfoil.
C14 : Glass.
C14 : Metal and batteries, aluminum.
C14 : Photo chemistry.
C14 : Glass, plastic, and papers.
C14 : Clothes.
C14 : Styrofoam.
C14 : Plastic bottles, such as milk jugs.
C14 : Some foam products, such as meat trays.
C14 : Burn scrap wood.
C14 : Anything that is recyclable.
C14 : Compost pile.
C14 : Just compost items.
C14 : Computer paper.
C14 : Styrofoam we recycle, and paper.
C14 : Coffee grounds in the garden.
C14 : Compost pile for our garbage, glass clippings, food in the summer time.
C14 : Paper bags.
C14 : Food.
C14 : Compost.
C14 : Brown paper bags.
C14 : Any garbage edible by wild life.
C14 : Food.
C14 : Paint, building supplies.

C14 : Wine bottles.
C14 : Vegetation and food goes for the animals.
C14 : Telephone books.
C14 : Aluminum.
C14 : Brown paper grocery bags.

D2 : Yes I would separate, it's a good idea--not willing to go unless its close.

D4 : My kids do not use those items anymore.
D4 : It will be smelly.
D4 : Probably.

D5 : I use those.
D5 : If they picked it up it is not the separating that is
D5 : Hard is getting it down there.
D6 : I would burn them first.
D6 : Use them for other reasons.
D6 : It would be nice if they did, it would be easier.

D7 : Most go to the hospitals.

D8 : Saves them.

D9 : Don't have any.
D9 : If I had any.
D9 : I don't have them.

D10 : Because when you buy, you pay a core deposit.

D11 : Don't have much of that.

D12 : Have it done at station.
D12 : You need to talk to people that change it.
D12 : We are to drop it off somewhere else, Dad's garage.
D12 : Take that to deposit place.
D12 : I don't deal with motor oil.
D12 : I would do any of the curbside pick-up.

D13 : Call the people that work with tires.
D13 : The same.
D13 : I do not handle tires, they end up wherever we buy our new tires.

D14 : But I don't know what else is left.
D14 : Anything.
D14 : Easy ones, not heavy and not cumbersome.
D14 : Plastic toys and lumber, bricks, blocks.
D14 : Anything they asked me to.
D14 : Anything that's left.
D14 : Conform with the rule of picking up whatever there was to pick up.

D14 : Whatever they want.
D14 : Whatever there is.
D14 : Whatever was required.
D14 : Wood.
D14 : Whatever else was necessary.
D14 : Anything that doesn't burn.
D14 : Anything.
D14 : Grass and stuff like that.
D14 : Anything you could.
D14 : Whatever can be used.
D14 : Branches and leaves.
D14 : Anything.
D14 : Can't think of anything.
D14 : Anything else left.
D14 : Anything.
D14 : Wood, concrete, cement.
D14 : All of them.
D14 : Anything.
D14 : Whatever that I would have.
D14 : Discarded clothing.
D14 : All these questions sound the same.
D14 : Anything.
D14 : Anything.
D14 : Anything.
D14 : Anything.
D14 : Anything that you could.
D14 : Things that are toxins like Draino that have to be disposed of.
D14 : Petroleum products.
D14 : Do whatever I could to help.
D14 : If they want to recycle it and I have it I would recycle.
D14 : Can't think of any.
D14 : Anything.
D14 : Anything.
D14 : Styrofoam.
D14 : Anything.
D14 : Paints that are hard to get rid of, stains, urethane.
D14 : Anything they needed.
D14 : Anything, clothes.
D14 : Don't know, if anything else I would.
D14 : I would do it all.
D14 : Styrofoam.
D14 : Diapers, but shouldn't charge for trash pickup.
D14 : Whatever.
D14 : If I was aware.
D14 : Anything.
D14 : Anything.
D14 : Anything.
D14 : Did separate them all.
D14 : Anything that could be recycled.
D14 : Anything that is recyclable.

D14 : Wood products.
D14 : I don not know what else is recyclable.
D14 : If you can think of them.
D14 : Anything that I could I would.
D14 : Can't come up w/ any but whatever there was I would separate.
D14 : Anything.
D14 : Whatever they told me to.
D14 : W/in reason.
D14 : Anything.
D14 : If it had to be separated, I would.
D14 : Anything that was recyclable.
D14 : Anything.
D14 : Organic materials.
D14 : If I knew something that they didn't want I would separate anything they took.
D14 : If there is a good curbside pickup, I would try to set anything apart, but as far as going to any great length, I would not.
D14 : Anything.
D14 : Anything.
D14 : Don't know what else.
D14 : Anything.
D14 : We would separate anything.
D14 : I do not know what is left.
D14 : Anything.
D14 : Whatever they would pick up.
D14 : Anything.
D14 : If I found out what else they were.
D14 : Anything else.
D14 : Refrigerators.
D14 : Anything.
D14 : Whatever I didn't mention.
D14 : Anything that could be recycled and not put more weight on our earth, I would be glad to recycle.
D14 : Paint and building supplies.
D14 : Whatever they wanted.
D14 : I don't know what it would be.
D14 : I would really try.
D14 : Just let us know.
D14 : Whatever we could reuse.
D14 : If I knew to separate I would.
D14 : Can't think of any.
D14 : I don't know just anything that was recyclable.
D14 : Any.
D14 : If I had a baby I would separate pampers.
D14 : Anything recyclable.
D14 : Leaves and sticks, and scraps from the garbage.
D14 : Fertilizers.
D14 : Poisons and insecticides.
D14 : If it was brought to my attention that it was recyclable.

D14 : Whatever else that would be available, recyclable places in my area are not convenient.
D14 : Anything they would take, tape, rags.
D14 : Anything.
D14 : Styrofoam.
D14 : Anything if they made it that easy to deposit.
D14 : Anything else.
D14 : No.
D14 : Everything I would do, I would comply 100%, not economically feasible at this time.
D14 : Anything to help.
D14 : Whatever is left.
D14 : Composing.
D14 : Aluminum.
D14 : Anything they would take.

E1 : I have just started that rq.
E1 : When available I get them rq.
E1 : I am not paying attention I am not going out of my way.
E1 : Need to make people aware.
E1 : I really don't buy that much, because I am all alone.

E2 : Not very often rq.
E2 : Not enough yet to pay attention.
E2 : I don't believe them anymore.

E3 : I am not sure.
E3 : I don't remember.(rq)

E4 : We drink out of cans but we put them in a glass.
E4 : Dig about cans.
E4 : Afraid that they aren't clean.
E4 : Do not pay attention.
E4 : I've never come across any.
E4 : I do not look for it.
E4 : I don't pay attention.
E4 : Never paid attention.
E4 : Haven't noticed if I have or not.
E4 : Not sure if he has or hasn't.
E4 : Not looked.

F1 : Depending on what it was it.
F1 : Were actually impossible for this woman to answer-anything I said.
F1 : She replied with I will buy whatever serves me best.
F1 : Depends.
F1 : Depends on the item.
F1 : Depend on product.
F1 : Depends.

F2 : Something may jeopardize safety of my kids going to a

lower quality.
F2 : Depends what it is.
F2 : If it were much inferior would not buy it.
F2 : This is a bad question.
F2 : Depends on product.
F2 : Depends on what I wanted it for.

F3 : Depends on jeopardizing safety of my children as far as a toy highchair, I will not take a chance.
F3 : It depends.
F3 : Depends on the product.
F3 : These questions are not really fair.

F4 : Some of these questions are difficult for me.
F4 : I am cost efficient.
F4 : My income is low so I have to get the best value for my money.

F5 : But I would also purchase the product made w/ new materials.
F5 : I'm getting bored.
F5 : Depends on whether indicates it is recycled.

F6 : Also examine the new product (wc).
F6 : I don't like to pay more for recycled products.
F6 : Depends on the product.
F6 : Depend on what it is.
F6 : If the recycled price was minimal I would buy the recycled but if the price difference was a lot I'd buy the new.
F6 : New product would have a better standard.
F6 : Cost efficient.

F7 : Always buy cheaper.
F7 : It depends on the products and the person who makes it.
F7 : Money is the object.
F7 : Depends on the product.

F8 : You are asking me the same questions.
F8 : This sounds the same.
F8 : You asked me this question before.

F9 : Depends on the item-sometimes quality is worth more and sometimes if a product is on a shelf it should have a notation that it is made from recycled products so the customer knows.
F9 : Depends on product.

G1 : In MI the return bottles the ones that are recycled are soapy.
G1 : I don't buy it I can't guess.

G1 : I have no opinion.
G1 : I dk. I do not notice.
G1 : Haven't dealt with any.

G1a : My husband is a machinist and he works metals and he would say the new is better.
G1a : I'm not sure that they really melt down.
G1a : The recycled product.
G1a : The material had been used more than once.
G1a : Anything recycled is lower.
G1a : Cause they have been used before.
G1a : I think if they are just going to crush them then it will be of a thinner aluminum.
G1a : The ones I bought are flimsy.
G1a : Just because they are all crushed together-used again.
G1a : Because they have been used before.

G2 : Very seldom buy anything in glass.
G2 : Really haven't noticed.
G2 : Purchases paper towels and garbage bags, I'm living in 4 different places in the last 6 mths.
G2 : Don't know the difference!
G2 : I have no idea , I'm not knowledgeable about it.
G2 : In all the recycled things I bought I do not notice any difference.
G2 : Glass is pure.

G2a : They have flaws, matter of fact I've taken a lot of glasses back because of defects.
G2a : Dig about kids breaking a pitcher.
G2a : Materials have been used more than once.
G2a : It wouldn't be worth as much as the original.
G2a : Because they are used again.
G2a : Weaker.

G3 : Some are low quality but I can't blame it on because its recycled.
G3 : I do not think they sell them in our stores.
G3 : I have no knowledge at all because I have never bought recycled paper.

G3 : I don't see any difference.
G3 : That would depend on the looks I can't say.
G3 : Stationary is lower quality and newspaper is about the same darker.
G3 : Paper towels are not as good, need more absorbency but others have chemicals in them.
G3 : Writing paper is good.
G3 : Depends on who did it.
G3 : Paper towel and toilet paper and tissues were poor quality but paper bags and greeting cards, etc... were the same quality.

G3a : Whenever I get a paper the ink comes off on my hands.
G3a : It doesn't seem as strong they looked, the colors in greeting cards weren't as vivid.
G3a : Materials are used more than once.
G3a : Because not same quality, can't get same grade(color) look.
G3a : At funny but some people don't like it.
G3a : Roughness of the texture.
G3a : I don't know didn't feel the same, not as structurally strong.
G3a : Because paper has different thing other than one chem put different stuff in it.
G3a : They don't seem to have the same freshness.
G3a : I can tell the difference, they are gray.
G3a : Like not processed properly almost crude.
G3a : I don't know I just noticed it when I bought the paper towel thinner.
G3a : Just real course not as absorbent.
G3a : Recycled wrapping paper was different than your use to.
G3a : Not necessarily dif - just my understanding.
G3a : We don't buy them for copy machines because they jam, the paper can not be used for some things.
G3a : Usually they are not the glossy, but sometimes it makes it easier to read.
G3a : Appearance.
G3a : They aren't as pliable.
G3a : The paper is more porous you can always tell.
G3a : It doesn't look as nice.
G3a : They are less absorbent and soft, and not as good.
G3a : They are not as strong.
G3a : Sometimes things like that are better new.
G3a : The news paper yellows and is brittle, just think of it as not holding together as well.
G3a : Don't hold up as good.
G3a : I have used paper towels not satisfied newspapers were bad too.
G3a : Newsprint leaves off darker color, paper towels can't tell the difference.
G3a : Tears up with only a little stuff.
G3a : Because they are they flimsier not as durable eg. paper bags.
G3a : It taken from the original product.
G3a : They don't appear as nice, certain items don't matter.
G3a : Not as fresh.
G3a : It seems coarser, more porous, shabbier.
G3a : Because they have foreign substances, fibers are shorter.
G3a : They just don't have the color or the stability, they just look recycled.
G3a : Its got a lot of ingredients in it like ink - its not clean.

G3a : Their appearance.
G3a : Usually the colors are not as clear, not as good grain, its difficult to get the same degree of whiteness.
G3a : They are a grayer color and they do not stand up as well.
G3a : Because of the first samples I saw they might be better now.
G3a : I don't know.
G3a : The ones I had experience print less quality and paper was more coarse.
G3a : They discolor, and they are thinner.
G3a : Mainly deals with the coloring of it and bleminish in it.
G3a : They're not as strong thinner.
G3a : It just seems like the print or paper is less quality.
G3a : They are less and papers less thick.
G3a : Fiber lengths are smaller and physical property are flimsier.
G3a : Appearance, haven't seen that much.
G3a : It seems less substantial less bright.
G3a : The paper seems thinner and crisper.

G4 : I can't find a difference - I used to work with it.
G4 : No knowledge do not know a thing about it.
G4 : Do not see any difference.
G4 : I would have to see it.
G4 : Would rather have a recycled plastic because you use less chemicals.

G4a : My in laws had a heavy plastic coffee pot and it melted.
G4a : Well ... just because I have in my own that will break easier.
G4a : I am talking about plastic bags and they aren't as strong.
G4a : I don't know - I don't have any objective reason.
G4a : They'd be thinner.
G4a : They have been used.
G4a : Because of foreign substances.
G4a : Same reason as before, then they are going to be thinner.
G4a : Because its recycled.
G4a : They are made from oil products, they taste differently and may be cancer forming.
G4a : Has seen extra heat generation vs it's virgin use.
G4a : Because they are used again.
G4a : Weaker.

G5 : Not into steel, do not know the processes for melting.
G5 : Don't know if I've seen it.

G5 : I have not run across it.
G5 : I do not anything about it either.
G5 : I don't.
G5 : Don't notice any diff.
G5 : I do not think.

G5a : My husband says that they are lower if they are recycled.
G5a : Because he is a grinder.
G5a : Materials have been used.
G5a : I don't know - its just my impression.
G5a : I don't really know.
G5a : I have no idea - just -I don't know.
G5a : Tell that from automobiles touch one too hard and scratch it.
G5a : Once it is used it might lose its strength.
G5a : I have that feeling.
G5a : More imperfections.
G5a : I've heard horror stories about certain bridges being built.
G5a : W/ some recycled steel -- it fell.
G5a : Because I've had cans that have deteriorated in the inside.
G5a : Doesn't sound to good, something would be burned out.
G5a : I just think they would be.

H0 : Would not know they are just coming out w./ recycled products.
H0 : Metals same but not paper.
H0 : I won't talk on anything I don't know about and I don't know.
H0 : Anything about this.
H0 : Can't answer this because it depends on the company that makes the recycled product.
H0 : I have never purchased recycled products so I have no opinion.
H0 : I don't know.
H0 : I can't answer that.
H0 : Depends and what processes are used, Plastics metals and glass.
H0 : Do good job paper and paper is a so job.

H1 : Never purchased any so I have no opinion.

H10 : Depends entirely on the company.
H10 : Most ridiculous questions I have ever heard, I don't purchase these so how can I have an opinion.

H11 : I have no opinion.

H2 : But you don't need high quality paper to write.
H2 : Never purchased any so I have no opinion.

H3 : Dig about daughter.
H3 : As far as I as know seen or used any recyclables.

H5 : I have not ran across that.
H5 : Never purchased so I have no opinion.

H6 : Never purchased and have no idea.

H7 : I have not purchased any so I did not have an opinion.
H7 : Didn't know you could recycle carpet.

H8 : Have no purchases made in those categories so I have no opinion.
H9 : I have not purchased any so I have no opinion.

I0 : It depends on what the company is doing that is doing the recycling.
I0 : This is a bad survey.
I0 : Kind of concerned rq.
I0 : I never thought about it , there are laws and have to go.
I0 : Through strict tests.
I0 : I don't know, I would need to know more about it, I don't know.
I0 : Anything about the standards.

I1 : What I read what we eat isn't sanitary anyway.
I1 : Haven't crossed my mind before.
I1 : I don't know rq.
I1 : There is a question mark not knowing how they found it.
I1 : Certain regulations will be meet and that they will meet the same standards.
I1 : I'm thinking there will be standards to meet.

I2 : Must use heat process.
I2 : You could sterilize something like that as opposed to paper.
I2 : Well I don't know rq.
I2 : I want it clean.

I3 : I am concerned in general about those things anyway.

I4 : Heat process.

I5 : Anything like that you would have to be.
I5 : Quite rq.
I5 : They do this now right?
I5 : I want something I eat out of to be clean.

I6 : Don't believe it would be put on market unclean, on

market.
I6 : Would buy it--feels she misinterpreted q.
I6 : I am not knowledgeable about that.

I6 : I would be concerned about fruits sprayed with insecticides from other countries (Mexico).

I7 : It is hard when you do not know the process and how to clean.
I7 : Quite concerned rq.

I8 : I would be concerned if it weren't recyclable.
I8 : If figure it would all be washed before.
I8 : Quite concerned rq.

J0 : I'm a skeptic.
J0 : I'm concerned but not because it is a recycled product.
J0 : Quite concerned rq.

J3 : Not worried about this container for detergent but using those recycled for food items.

J6 : Quite concerned rq.

J7 : I bought some barbies for my daughter and it was wrapped w/recycled cardboard and there was mosquitos that carried diseases all in the package.

K1 : It depend on the food budget rq.
K1 : Depends on how much and on certain things.
K1 : If the recycled materials cost then no but if not then no.
K1 : They would have to have a good advertising campaign for me to pay more.
K1 : Should be the same.
K1 : I shop for price.
K1 : If cost went down on recycled things then.
K1 : Well it depends on what I wanted it for.
K1 : I am cost efficient.
K1 : Maybe a little more.
K1 : I'm retired and my income is not extremely high, so I would not be able to afford it, I would like to. (wc)
K1 : Depends if product is good.
K1 : RQ, if I could afford it I would but I probably couldn't.

K2 : Depends too vague of questions.
K2 : Depends on product.

K3 : I'd have to think about it, day may come when we have to.

K3 : Yes if everybody else would.

K4 : If it were food I would be willing to pay more than the products recycled for non food products.
K4 : Depends on product I'm buying.

L1 : I noticed that the McDonalds separates their garbage.
L1 : To make it cheaper, but same standard.
L1 : Then another gov't expense.
L1 : I'm not a person for gov't , I'm a states rights person, people are too dependent on the gov't. If it is profitable for the co.
L1 : Then they will do it.
L1 : If it wouldn't not hurt the public financially.

L2 : The government trying to cut costs.
L2 : Without hurting financially.

L3 : I really don't know how to answer that I don't think that deeply.
L3 : To small business only not big corporation.

L4 : As long as it is a U.S. product and not foreign.
L4 : Nothing additional.
L4 : (rq) I don't know what this means.
L4 : They should anyway.
L4 : Need more information on this question before I answer it.

L5 : Some of these are poor questions for me because I'm a senior citizen and the government doesn't help me at all.

L6 : Someone is going to be an entrepreneur of recycling.
L6 : Legal - would spend years discussing these.
L6 : Not a whole lot of money though.
L6 : If it would not hurt the public, things are hard enough as it is, and it looks like it's going to get more tight financially.

L7 : They should get it together so it is available to people ours is only available 2 days a week.
L7 : Educational information.
L7 : Public service message.
L7 : I am on the borderline of that answer yes one way and no the other.

L8 : Retraining for unemployed (wpa).
L8 : Gov't should take a stand and be more encouraging.
L8 : Should provide more ways to pick up more recyclable materials.
L8 : Any to any that will attempt to produce recycled

packages.
L8 : Don't know maybe sanitation make sure every thing is cleaned.
L8 : Researchers teaching on recycling ideas.
L8 : I think that they should give to the ones that recycle.
L8 : Some incentives.
L8 : Make public more aware.
L8 : Inspections, research of the recyclable materials and what happens after they are recycled, they should really be involved w/ the inspection to make sure they are of high quality and standard.
L8 : Ban paper diapers, plastic wraps over cleaning(dry) mandatory to separate garbage -- everybody.
L8 : Gov't asst should focus on encouraging people to use these materials. They already pay for trash disposal and some of money could be used for recycling products.
L8 : A conformed way of collection and recycling.
L8 : Make sure that the things that can be recycled are because landfills are so bad, it's a waste to not to use the old product.
L8 : Mandatory recycling program.
L8 : I think it should be anything if you can't afford should provide monetary assistance and pay back when you could afford it.
L8 : Can't think of any.
L8 : Results of tests.
L8 : They need to do whatever there is to save the environment.
L8 : Provide research to the consumer. do the recycling themselves other.
L8 : Programs.
L8 : I don't know.
L8 : To develop education about recycling to children increase curb side pick up.
L8 : They should be there when they need them.
L8 : I don't know.
L8 : All they can.
L8 : Maybe for certain community's - like road side pick-up.
L8 : Tax free things, government facilities.
L8 : Tax breaks.
L8 : A little bit but not a whole lot.
L8 : Only if needed.
L8 : Whatever they deem necessary.
L8 : Tax break.
L8 : Something only local level.
L8 : Should provide the start and breakdown, and more knowledge to the public, gov't should take big step in the program.
L8 : More research, more.

L8 : They should encourage them.
L8 : Diagrams on where people could take their materials if not curbside pickup.
L8 : Outside of a short term tax release.
L8 : Probably education for the public.
L8 : To the poor.
L8 : I have no idea you have covered it.
L8 : I don't know - should be there to make sure they are ok.

L8 : Anything to help the economy.
L8 : Financial assistance.
L8 : Do more recycling, use as a source of income for some people.
L8 : I don't really know.
L8 : They should help w/ money to improve recyclable products, and help the people pick up the recycled material.
L8 : Knowledge.
L8 : Should be more in the encouragement area.
L8 : Probably just research and development.
L8 : Knowledge.
L8 : Campaign of encouragement.
L8 : Whatever the recyclers want.
L8 : Technical and financial.
L8 : Help give them what ever incentives they can.
L8 : Put more deposits on stuff to make people bring them back.
L8 : Liability legislation.
L8 : Curbside service gov't should get involved.
L8 : Make sure there are programs available to give the industries information.
L8 : Do what they can.
L8 : More ads on tv about what we can recycle and what we can use on our lawns and stuff like that.
L8 : Not sure.
L8 : Generally they should help the businesses.

L9 : State and local.
L9 : State and federal but mainly federal.
L9 : Local and state.
L9 : State and federal.
L9 : And state.
L9 : Federal and state.
L9 : People in general we should not relate on government.
L9 : Federal and local.
L9 : State and federal.
L9 : Mostly.
L9 : Most local gov't don't have the money.

M1 : All of them.
M1 : Conversation w/ others.
M1 : Environmental groups.

M1 : Myself.
M1 : Basic knowledge.
M1 : TV and newspaper and fliers.
M1 : All of them.
M1 : We watch tv alot newspaper and when I go shopping I watch.
M1 : My soon to be wife.
M1 : Personal observation.
M1 : School.
M1 : Own knowledge.
M1 : Newspapers and fliers.
M1 : All of the above.
M1 : TV and shopping guide.
M1 : All of them.
M1 : From other people or listening to other.
M1 : 1:os:from place I worked - Clean Water Action.
M1 : Consumers report.
M1 : TV and newspaper.
M1 : The packages themselves.
M1 : Newspapers and television.
M1 : Consumers report.
M1 : My own common sense.
M1 : TV and newspaper.
M1 : All - TV, news.
M1 : TV and radio.
M1 : Local schools.
M1 : Newspaper and TV.
M1 : Mags and news.
M1 : Mags and news paper.
M1 : Mag, news, TV.
M1 : All of them mostly news papers.
M1 : My own opinion I don't know I try it for myself.
M1 : Mostly by trying it out.
M1 : Recycling center in town.
M1 : Through work, or personal presentations.
M1 : All.
M1 : From time to time all of them.
M1 : And TV.
M1 : And newspaper.
M1 : And TV.
M1 : Mag, shopping guide-local.
M1 : Newspaper.
M1 : TV and radio.
M1 : And magazines.
M1 : Reading material and your own ingenuity.
M1 : All of the above.
M1 : All of them.
M1 : All of them.
M1 : All of the above.
M1 : News and tv and radio.
M1 : Personal inspection.
M1 : All of the above.

M1 : Combination of all the ones mentioned.
M1 : Boyfriend's mom tells me stuff.
M1 : All those things.
M1 : All of the above.
M1 : Television and direct mail.
M1 : TV.
M1 : 4-H dept.
M1 : All of them.

N3 : Township.
N3 : Transitional area no more residential.
N3 : Live in city on the rural area of it.
N3 : Small.
N3 : This is a farm.
N3 : This persons lives in a village.

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