

ENVIRONMENTAL SUSTAINABILITY BY SOCIOCOGNITIVE DECELERATION OF POPULATION GROWTH

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Abstract

The present chapter addresses environmental sustainability through deceleration of population growth. Serial dramatizations founded on social cognitive theory serve as the principal vehicle for personal and society-wide changes. These mass media productions inform people, enable them with effective strategies and resilient efficacy beliefs, and guide, motivate, and support them in their efforts to exercise control over their rate of child bearing and otherwise improve their life condition. Global applications in Asia, Africa, and Latin America raise viewers' perceived efficacy to determine their family size, increase approval of family planning, raise the status of women in familial, social and educational life, and increase use of family planning services and adoption of contraceptive methods. In applications in Africa, the media productions also increase condom use and reduce the number of sexual partners to check the spread of HIV infection. This generic model of social change can also promote environmental preservation practices.

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1. INTRODUCTION

Burgeoning population growth is the foremost and by far the most urgent global problem. It presents the greatest challenge to achievement of ecologically sustainable development and growth. Environmental degradation is affected by population size, the level of consumption, and the damage to the ecosystem caused by the technologies used to supply the consumable products (Ehrlich, Ehrlich, & Daily, 1995). There are limits to the earth's carrying capacity. The global ecosystem cannot sustain burgeoning populations and high consumption of finite natural resources. The combination of high fertility rates, increased longevity through more healthful practices and control of communicable diseases, and consumptive appetites whetted by aggressive marketing and national pressures for continuous economic growth thwart progress toward economic and social betterment without degrading the quality of the environment.

1.1 Population Growth and Environmental Conservation

The accelerating population growth is wreaking environmental havoc. The mounting ecological consequences include deforestation, reduction of arable land due to soil deterioration, dwindling natural resources, air and water pollution, depletion of the ozone shield, global climate changes, accelerated extinction of biodiversity and destruction of other interdependent ecosystems that sustain life. Much of this environmental degradation is irreversible.

Sustainability concerns not only the physical ecology and economic conditions but also the quality of social life. Soaring populations wreak havoc with the social ecology as well. Mass migrations of people to urban areas create congested slum settlements with scant basic services, malnutrition, hazardous health conditions, high unemployment, poverty and political unrest. A burdensome population growth thus degrades the standard of living and drains resources needed for national development. In these diverse ways, swelling demographic forces produce mounting blighting of the social and physical ecology of societies.

1.2 Consummatory Lifestyles and Environmental Conservation

The present chapter is primarily concerned with the role of population growth in sustainable development and environmental conservation. Most of the psychosocial efforts to stem the population tide have been applied in countries experiencing population crises with looming doubling of their populations unless fertility rates are stabilized and brought down. It should be noted that prosperous industrialized nations with relatively low fertility rates are heavy contributors as well to environmental degradation. They do so through affluent consummatory lifestyles at an unsustainable rate that devour a great deal of energy and resources, beget high waste production, and spawn a lot of environmentally harmful by-products by the technologies used to harvest raw materials and to manufacture and distribute the multitude of goods. To fuel economic growth, industrialized nations export and actively market the consummatory lifestyle abroad. Altering consummatory styles of behavior in keeping with sustainable development presents the other formidable challenge to forestall mounting degradation of the global condition

People create technologies that increase control over their environment and how they live their daily lives. Modern technologies help to keep us healthy, feed us, shelter us, transport us, educate us, entertain us, and free us from the drudgery and the wear and tear of physical labor. But many of the technological innovations that provide current benefits also entail hazards that can take a heavy future toll

on human beings and the environment. Paradoxically, the very technologies that people create to control their life environment can become a constraining force that, in turn, controls their thinking and actions (Bandura 2001). Because ecological life supports are in delicate balance, even frivolous technologies can produce effects that pose grave threats. For example, chlorofluorocarbons used to dispense the contents of aerosol cans damage the protective ozone layer against ultraviolet radiation. This seemingly innocuous convenience can endanger health and ecosystems globally. The multiform threats to environmental sustainability are largely the products of human activity.

1.3 Counterbalancing the Foreshortened Perspective

The capacity to extrapolate future consequences from known facts enables people to take corrective actions that avert disastrous futures. Future states cannot, of course, be causes of current motivation and action because they have no actual existence. However, by being represented cognitively in the present, foreseeable future states are converted into current motivators and regulators of behavior. It is the expanded time perspective and symbolization of the future afforded by forethought that can provide the impetus for corrective measure before conditions deteriorate to dangerous levels. Had humans been ruled solely by instant consequences, they would have long destroyed most of the environmental supports of life. This is not to say that the immediate rewards of activities promoted for short-term gain do not jeopardize ecologically healthy futures. They do.

In commenting on the perils of the foreshortened perspective, Wenk (1979) enumerates the many factors that work to underweigh the future in social decisions. The public is often too enticed by short-term benefits to balance them against long-term ecological costs. The incentive systems of industries are strongly oriented toward practices that bring profits at quarterly intervals; politicians have to cater to short-term issues to ensure their political survival; and the media probe solutions to current crises rather than enlightened planning for the future. Moreover, in large-scale environmental efforts individuals may feel that their actions are an inconsequential contributor to the whole and, therefore, it is not worth the trouble to alter their behavior.

Risk analyses attempt to bring the projected future harm on human life and the ecosystem to bear on current social practices (Bandura, 1986). Because risk analyses involve a fair amount of conjecture, they often arouse protracted sociopolitical battles. Those who have a vested interest in existing practices undermine the credibility of expert judgments and erect impediments to change. To complicate matters further there is a notable difference between risks as analysts compute them and the public's perception of their seriousness (Bandura, 1986; Slovic, Fischhoff, & Lichtenstein, 1982; Starr, Rudman & Whippel, 1976). Widespread belief that harmful environmental effects are controllable or even reversible by yet to be developed technologies create further disincentives to change.

People are not easily moved by abstract notions of distant consequences when patterns of living bring current benefits and the environmental degradation is slowly cumulative. People have a remarkable capacity to adapt to gradually worsening conditions of life. Projected distal consequences alone are, therefore, unlikely to mobilize the broad public support needed for ecologically healthful practices and policy initiatives to ensure environmental sustainability. The various constituencies within a society have diverse self-interests. They are unlikely to adopt conservation practices unless their collective long-term self-interests are linked to them. The challenge is to forge coalitions of diverse self-interests into unified collective action. This requires providing people with enlightening guidance, incentives and social supports for livelihoods that ensure sustainability of the ecological supports of life. Although the consummatory-environmental conservation link lies beyond the scope of the present chapter, consummatory effects are being increasingly conjoined with the population growth issue. Populations are not only swelling, but adopting more consumptive lifestyles that deplete natural resources and produce environmental damage in catering to the growing demand. It may be easier to achieve environmental sustainability by reducing population than by trying to reduce enduringly overconsumption by burgeoning populations.

2. SOCIAL COGNITIVE THEORY FOR SOCIAL CHANGE

There are three major components of a sociocognitive communications theory for social change. The first component is a **theoretical model** that specifies the determinants of psychosocial change and the mechanisms through which they produce their effects. This knowledge provides the guiding principles. The second component is a **translational and implementational model** that converts theoretical principles into an innovative operational model by specifying the content, strategies of change, and their mode of implementation. The third component is a **social diffusion model** on how to promote adoption of psychosocial programs in diverse cultural milieus. It does so by making functional adaptations of the programs to different sociostructural circumstances, providing enabling guidance, and enlisting the necessary resources to achieve success.

2.1 Dual Path of Influence

In fostering large-scale changes, communications systems operate through two pathways (Figure 1). In the direct pathway, communications media promote changes by informing, enabling, motivating, and guiding viewers. In the socially-mediated pathway, media influences are used to link participants to social networks and community settings. These places provide continued personalized guidance, as well as natural incentives and social supports for desired changes. The major share of behavioral and valuational changes are promoted within these social milieus. People are socially situated in interpersonal networks. When media influences lead viewers to discuss and negotiate matters of import with others in their lives, the media set in motion transactional experiences that further shape the course of change. The socially-mediated influences can have stronger impact than the direct media influence.

Figure 1. Paths of influences through which communications affect psychosocial changes both directly and via a socially-mediated pathway by linking viewers to social networks and community settings.

2.2 Cultural and Value Analyses

As is true of any intervention, the use of mass communications to foster personal and social change raises ethical issues. Ethical evaluation of such efforts will depend on who selects the types of changes to be promoted, the agents of change, the means used, and the choice and voluntariness of exposure to the influence. Extensive cultural and value analyses are conducted before serial dramas are developed and implemented. In this formative phase, focus groups representing the various constituencies in the society, identify problems of major concern to them and the obstacles they face. These interviews provide the culturally relevant information for developing realistic characters and engrossing functional plot lines. The host production team, drawing on a wide variety of sources, including public health systems, religious organizations, women's groups and other constituencies identify unique cultural values and itemize the types of changes the dramatizations should encourage.

Value disputes are often fueled by wrangling over stereotypes with emotive surplus meanings rather than deliberating about changes in real-life terms. The value issues are, therefore, cast in concrete terms of detriments and benefits of particular lifestyles. For example, initial religious and political opposition in Mexico to serials promoting "family planning" turned to support when the nature of the changes were presented concretely in a value matrix. The tangible values embody respect for human dignity and equitable familial, social, health and educational opportunities that support common human aspirations. The dramatizations are thus grounded in the internationally endorsed human values codified in United Nations covenants and resolutions. As will be shown shortly, certain characters in the dramatizations personify the positive values with beneficial life effects, others embody the negative

values and the problems such lifestyles cause. The dramatized options and consequences enable people to make informed choices to improve their lives.

2.3 Social Cognitive Theoretical Model

The present section summarizes the tenets of social cognitive theory that provide guidelines for constructing effective media productions. A comprehensive theory of human behavior must explain how people acquire attitudes, values, styles of behavior, and how they motivate and regulate their level of functioning.

There are two basic modes of learning. People learn through the direct experience of rewarding and punishing effects of actions, and through the power of social modeling. Trial-and-error learning is tedious and hazardous when errors produce costly or injurious consequences. This process is short cut by learning from the successes and mistakes of others. Another major advantage of modeling through the media is that it can reach vast populations simultaneously in widely dispersed locales. Video systems feeding off telecommunications satellites have become the dominant vehicle for disseminating symbolic environments. New ideas, values, and style of conduct are now being rapidly diffused worldwide in ways that foster a globally distributed consciousness.

Social Modeling. Modeling influences serve diverse functions in promoting personal and social change. (Bandura, 1986; 1997). These include instructive, motivational, social prompting, and social construction functions.

With regards to the instructive function, models serve as transmitters of knowledge, values, cognitive skills and new styles of behavior. Observers also acquire emotional proclivities toward people, places, and things through modeled emotional experiences. Observers learn to fear what frightened or injured models. To dislike what repulsed them. And to like what gratified them. Self-debilitating fears and inhibitions can be eliminated by modeling that depicts effective coping strategies and instills a sense of coping efficacy. Seeing others gain desired outcomes by their actions can create outcome expectancies that serve as positive motivators. Observed punishing outcomes can create negative outcome expectancies that function as disincentives for similar courses of action. The behavior of others also serves as social prompts that activate, channel and support modeled styles of behavior. The types of models who predominate in a social milieu determine which human qualities are promoted from among many alternatives.

Televised portrayals of human nature, social relations, and the norms and structure of society shape the public consciousness (Gerbner, Gross, Morgan, and Signorielli, 1994). Media representations gain influence because people's social constructions of reality depend heavily on what they see, hear, and read rather than on what they experience directly.

It is one thing to learn new styles of behavior. It is another to put them into practice, especially in the face of impediments. There are several motivators that provide support for adopting new lifestyles.

Perceived Self-Efficacy. Among the mechanisms of self-influence for change, none is more central or pervasive than beliefs in one's efficacy to exercise control over one's functioning and events that affect one's life. This core belief system is the foundation of human motivation and accomplishments. Unless people believe they can produce desired effects by their actions they have little incentive to act or to persevere in the face of difficulties. Whatever other factors serve as guides and motivators, they are rooted in the core belief that one has the power to effect changes by one's actions.

Human well-being and attainments require an optimistic and resilient sense of efficacy. This is because the usual daily realities are strewn with difficulties. They are full of frustrations, conflicts, impediments, adversities, failures, setbacks, and inequities. People must have strong belief in their

efficacy to sustain the perseverant effort needed to succeed. The functional belief system combines realism about tough odds, but optimism that one can beat those odds through self-development and perseverant effort.

Peoples' beliefs in their efficacy can be developed in four ways, through mastery experience, social modeling, social persuasion, and construal of physical and emotional states. The most effective way of instilling a strong sense of efficacy is through mastery experiences. Successes build a robust efficacy. Failures undermine it, especially in early phases of efficacy development. If people experience only easy successes, they come to expect quick results and are easily discouraged by failure. Resilient efficacy requires experience in overcoming obstacles through perseverant effort. Resilience is also built by training in how to manage failures so it becomes informative rather than demoralizing.

The second way of developing a sense of efficacy is by social modeling. Models are a source of inspiration, competencies and motivation. Seeing people similar to oneself succeed by perseverant effort raises observers' beliefs in their own abilities. The failures of others can instill self-doubts about one's own ability to master similar challenges.

Social persuasion is the third mode of influence. Realistic boosts in efficacy can lead people to exert greater effort. This increases their chances of success. But effective efficacy builders do more than convey positive appraisals. They structure situations for others in ways that bring success and avoid placing them prematurely in situations where they are likely to fail. They measure success by self-improvement rather than by triumphs over others. Pep talks without enabling guidance achieve little.

People also rely partly on their physical and emotional states in judging their efficacy. They read their emotional arousal and tension as signs of personal vulnerability. In activities involving strength and stamina, people interpret their fatigue, aches and pains as indicators of low physical efficacy. Mood also affects how people judge their efficacy. Positive mood enhances a sense of efficacy, despondent mood diminishes it. The fourth way of modifying efficacy beliefs is to reduce people's stress and depression, build their physical strength, and change misinterpretations of their physical states.

Efficacy beliefs regulate human functioning through four major processes: cognitive, motivational, emotional, and decisional. Perceived self-efficacy occupies a pivotal role in causal structures of social cognitive theory because efficacy beliefs affect self-development, adaptation and change not only in their own right, but through their impact on other determinants (Bandura, 1997). Such beliefs influence whether people think pessimistically or optimistically, self-enhancingly or self-hinderingly. Efficacy beliefs play a central role in the self-regulation of motivation through goal challenges and outcome expectations. It is partly on the basis of efficacy beliefs that people choose what challenges to undertake, how much effort to expend in the endeavor, how long to persevere in the face of obstacles and failures, and whether failures are motivating or demoralizing. The likelihood that people will act on the outcomes that they expect prospective behaviors to produce depends on their beliefs about whether or not they can produce those behaviors. A strong sense of coping efficacy reduces vulnerability to stress and depression in taxing situations and strengthens resiliency to adversity.

Efficacy beliefs also play a key role in shaping the courses lives take by influencing the types of activities and environments people choose to get in to. Any factor that influences choice behavior can profoundly affect the direction of personal development. This is because the social influences operating in selected environments continue to promote certain competencies, values, and interests long after the decisional determinant has rendered its inaugurating effect. Thus, by choosing and shaping their environments, people can have a hand in what they become.

Many of the challenges of life involve common problems that require people to work together with a collective voice to change their lives for the better. Social cognitive theory extends the conception of human agency to collective agency (Bandura 2000). The strength of families, communities, school systems, business organizations, social institutions, and even nations lies partly in people's sense of collective efficacy that they can solve the problems they face and improve their lives through unified effort. People's shared belief in their collective power to produce desired results is a key ingredient of

collective agency. The stronger the perceived collective efficacy, the higher the groups' aspirations and motivational investment in their undertakings, the stronger their staying power in the face of impediments and setbacks, the higher their morale and resilience to adversity, and the greater the likelihood of realizing the futures they seek to achieve.

Efforts at social change typically challenge power relations and entrenched societal practices. Successes do not come easy. To change their lives for the better, people have to struggle against dated traditions and normative constraints. For example, managing sexual and reproductive life requires managing emotionally-charged relationships embedded in power relations (Bandura, 1994). In societies with gendered power imbalance, women who want to reduce child bearing have difficulty talking to their husbands about contraceptive methods. The challenge is to enable women to discuss family planning and to provide them with social supports to do so. However, the major burden for contraception should not fall solely on women. Efforts at change must address sociocultural norms and practices at the system level. Because of the centrality of perceived efficacy in people's lives, media productions help to raise people's beliefs that they can have a hand in bringing about changes in their lives. For example, in applications of a serial drama in Tanzania, many women believed they had no control over family size. It was predetermined divinely, by fate or by forces beyond their control. The serial drama raised their perceived efficacy to manage their reproductive life by family planning.

People must be prepared for the obstacles they will encounter by modeling prototypic problem situations and effective ways of overcoming them. There are several ways of building resilience to impediments through social modeling. They are taught how to manage setbacks by modeling how to recover from failed attempts. They are shown how to enlist guidance and social support for personal change from self-help groups and other agencies in their localities. Seeing others similar to themselves succeed through perseverant efforts also boosts staying power in the face of obstacles.

Goals and Aspirations. People motivate themselves and guide their behavior by the goals, aspirations, and challenges they set for themselves (Bandura, 1986; Locke & Latham, 1990). Long-term goals set the course of personal change. Short-term ones motivate and provide direction for one's efforts in the here and now. Goals have little impact unless they are translated in explicit plans and strategies for realizing them. Media productions, therefore, model how to translate a vision of a desired future into a set of achievable subgoals.

Outcome Expectations. Human motivation and behavior are also affected by the outcomes people expect their actions to produce. Outcome expectations can take three major forms. One set of outcomes includes the material pleasurable and aversive effects the behavior produces. Behavior is also partly regulated by the social reactions it evokes. The social approval and disapproval the behavior produces is the second major class of outcomes. People adopt personal standards and regulate their behavior by the self-evaluative reactions. They do things that give them self-satisfaction and self-worth, and refrain from behaving in ways that breed self-dissatisfaction.

Perceived Facilitators and Impediments. Personal change would be easy if there were no impediments to surmount. The facilitators and obstacles people see to changing their behavior is another influential determinant. Some of the impediments are personal ones that undermine efforts at change, such as profound self-doubts that one's efforts would make a difference. Others are situational and structural impediments. Beliefs of personal efficacy affect how formidable the impediments appear. People who have a resilient sense of efficacy figure out ways to overcome obstacles to change. Those who distrust their efficacy view impediments as insurmountable and are easily convinced of the futility of effort. They quickly abort their effort when they run into difficulties should they try.

2.4 Translational and Implementational Model

The sociocognitive model for promoting society-wide changes, that has now been adopted worldwide, was pioneered by Sabido (1981). It uses long-running media productions with concurrent plots as the principal vehicle of change. The episodes depict in captivating drama the daily lives of people, some of whom are on adverse life-course trajectories, while others model resiliently effective ways to improve their quality of life. Hundreds of episodes get viewers deeply emotionally engaged in, and identified with, the modeled characterizations that provide enabling guides and incentives for personal and social change. The construction of the dramatic serials draws on the basic principles of social cognitive presented earlier.

Differential Modeling Three types of modeling influences are used: prestigious, similarity, and transitional. To take advantage of attractable and aspirational value of prestigious modeling, culturally admired television models are selected to exhibit the beneficial styles of behavior. Social attraction increases the impact of modeling influences.

Characters representing relevant segments of the viewing population are shown adopting the beneficial attitudes and behavior patterns. Seeing people similar to themselves change their lives for the better not only conveys strategies for how to do it but raises viewers' sense of efficacy that they too can succeed. Viewers come to admire and are inspired by characters in their likenesses who struggle with difficult obstacles and eventually overcome them.

The episodes include positive models portraying beneficial lifestyles. Other characters personify negative models exhibiting detrimental views and lifestyles. Transitional models are shown transforming their lives by moving from uncertainty or discarding adverse styles of behavior in favor of beneficial ones. The differential modeling contrasts the personal and social effects of different lifestyles. Viewers are especially prone to draw inspiration from, and identify with, transforming models by seeing them surmount similar adverse life circumstances.

Vicarious Motivators. Another feature of the dramatic productions enlists vicarious motivators for change. The personal and social benefits of the favorable practices, and the costs of the detrimental ones are vividly portrayed. Depicted beneficial outcomes instill outcome expectations that serve as positive incentives for change.

Showing models discarding subservient roles and challenging inequitable dated norms requires depiction of some negative reactions to reflect the social reality. These discordant episodes model effective strategies for managing such events successfully so that viewers come to believe that they can improve the quality of their lives by similar means used perseveringly. This requires incorporating many efficacy-enhancing elements in the transactional episodes. Occasional references to women leaders worldwide working to raise the status of women can serve as an additional source of inspiration and support. In cultures where women are massively subjugated, changing entrenched cultural norms is a slow, gradual process. They have a long way to go. When large power differentials exist in gender relations, the modeled strategies must be judicious rather than blatantly confrontational – which, in real life, can be risky. Male models personifying understanding and support of equitable normative practices help to mitigate antagonistic social counteractions.

Attentional Involvement. Melodramatic embellishments and emotive music give dramatic intensity to the episodes to ensure high attentional involvement of the viewers. Continued engrossment in the broadcast series enhances their impact.

Symbolic Coding Aids. Still another feature is designed to increase the memorability of the modeled values and social practices. Epilogues summarizing the modeled messages are added to aid the symbolic coding of information for memory representation.

Environmental Supports. It is of limited value to motivate people to change if they are not provided with appropriate resources and environmental supports to realize those changes. Enlisting and creating environmental supports is an additional and especially helpful feature for promoting the social changes encouraged by the communications media.

In the monitoring feature of the methodology, once a program is aired producers monitor how viewers perceive the characters and the dramatized options and consequences for corrective changes if necessary. Negative modeling must be especially structured with care because some of the viewers who subscribe to cultural stereotypes may end up siding with the negative stereotype being modeled (Brown & Cody, 1991). Such unintended effects can be minimized by accenting the adverse consequences of the detrimental life style, and have the negative models begin to express some self-doubt about their life view.

2.5 Social Diffusion Model

The serialized format fosters strong involvement in the lives of the characters as they grapple with their problems over the course of the drama. The dramatic serials are created only on invitation, often on the initiative of nongovernmental organizations of the countries seeking help with their soaring population or other societal problems. Effective psychosocial models of change usually have limited social impact because of inadequate systems for their social diffusion. As a result, we do not profit from our successes. Lack of expertise and resources in the host country further undermine perceived efficacy to produce long-running serials that can capture and hold public attention.

Population Communications International (PCI) and the **Population Media Center** remove this impediment by serving as the mechanisms for diffusing globally the use of televised dramas to enhance the quality of family life, to promote gender equality, and family planning (Ryerson, 1994, 1999). These Centers secure funds from the United Nations Population Fund, and private foundations and donors to cover production costs. Social cognitive theory (Bandura, 1986), communications theory (Singhal & Rogers, 1999; Rogers, 1995), and dramatic theory (Sabido, in press) provide the generic principles of change. But their implementation requires functional adaptations to different cultural milieus. In addition, the Centers provide the nations' scriptwriters, producers, and actors with the technical assistance to construct serial dramas tailored to the societal problems, aspiration, and normative practices of the host country. This creative process involves a close collaborative partnership with local production teams aimed at enabling people to improve their life circumstances. To ensure sustainability of productions, the workshops equip local partners with the skills to produce engrossing serials for social change on their own. Some become regional trainers.

The serial dramas are not soap operas in which a wide array of characters are endlessly entangled in social or moral predicaments laced with interpersonal treachery. Nor are they superficial media campaigns marketing quick fixes to intractable social problems. Rather, the sociocognitive genre dramatizes the everyday social problems people struggle with, models solutions to them, and provides them with incentives and strategies for bettering their lives. In surveys, viewers report the many ways in which the characters in the drama touch their personal lives. Functional relevance makes these serials immensely popular. Long-running plot development fosters growing valuation of beneficial styles of behavior and devaluation of detrimental ones. In short, both genres involve storytelling but they tell entirely different types of stories serving markedly different purposes. To misconstrue this proactive enabling genre as a soap opera, as is commonly done, trivializes its markedly different structure and function.

The sociocognitive dramatizations are not aimed at simply changing attitudes, which often bear weak relation to behavior. When self-interest conflicts with personal attitudes, people readily find reasons not to act on their attitudes or justify exemptions to them. As previously noted, the dramatizations serve more powerful functions. They inform, enable, guide and motivate people to effect changes in their lives. The dramatizations further assist people in their efforts at personal and social change by linking them to enabling and supportive subcommunities and beneficial human services.

Nor are these “family planning” programs foisted on the women of poor nations by powerful outsiders. This communications approach addresses the problem of mounting population growth and possible solutions in broader human terms. In many societies women are treated more like property than persons, denied equitable access to education, forced into prearranged marriages, and granted little say in their reproductive lives. Therefore, one of the central themes in the dramatizations is aimed at raising the status of women so they have equitable access to educational and social opportunities, have a voice in family decisions about child bearing, and serve as active partners in their familial and social lives. This involves raising men’s understanding of the legitimacy of women making decisions regarding their reproductive health and family life. Moreover, the engrossing programs serve as an excellent vehicle for modeling a variety of functional life skills woven into the familial and social transactions.

The Centers that serve as the vehicle for social diffusion also promote cooperation and collaboration among nongovernmental organizations worldwide concerned with population, environmental and health problems, and human rights. Such alliances increase the chances of success by mobilizing and focusing people's efforts to improve the quality of life for themselves and their children. In addition, the Centers work with professionals in the entertainment industry to heighten their sensitivity to ethnic stereotyping, human rights, health, population growth and environmental degradation in their productions and how to include themes related to these issues in the story lines they create for various types of fictional dramas.

3. ASSESSMENT OF EFFECTS

Three sets of indicators are used to gauge the effectiveness of the communications model to bring down the population growth rate. The first includes changes in family size preferences, as measured by what participants regard to be the ideal number of children. The second indicator is prevalence of contraceptive use. The third is reduction in fertility rates. This is a temporally extended index that does not lend itself to assessment in the short run because the rate of childbearing must be computed over the full fertility period.

The direct impact of televised influences is affected by level of self-exposure to the modeled values and social practices. Viewership surveys assess the reach of the programs, how often people view them, and how they affect viewers at a personal level. The socially mediated impact is measured in terms of the frequency with which people talk with their spouses and others about matters modeled in the dramatizations, enrollment in family planning programs, and the impetus for it. These types of data permit, with appropriate controls for other potential determinants, more refined analyses of impact as a function of level of self-exposure and social transactions that help to promote desired personal and social change.

As previously noted, the serial dramas try to improve people's lives in a variety of ways not just reproductive behavior. These broader social indices of impact include changes in people's sense of efficacy to manage and improve their lives, support of gender equality in opportunities for social and education growth, spousal abuse, health promotion, protection against AIDs infection, and environmental conservation practices. Some of the themes are unique to a given society, such as the practice of dowry and arranged marriages in which women have no say in the choice of husband.

The outcomes selected for assessment represent the different spheres in which people seek to improve their lives. These socially important assessments need to be supplemented with measurements of the key psychosocial factors through which media influences affect personal and social change. As

shown earlier, these sociocognitive factors include people's beliefs that they can effect changes in their lives by individual and collective action; the goals and aspirations they set of themselves; the material, social, and self-evaluative outcomes they expect their efforts to produce; and the social facilitators and impediments they see to improving the quality of their lives and shaping the social future. Assessment of these key determinants provides guides for the needed adjustments in the dramatizations to enhance their impact.

4. GLOBAL APPLICATIONS OF THE SOCIOCOGNITIVE MODEL

4.1 Promoting National Literacy.

Sabido (1981) first devised the essential elements and structure of the sociocognitive model in a dramatic series designed to promote enrollment in a national literacy program in Mexico. Literacy is, of course, a key element in national social and economic development and in stemming the population growth. He faced the challenge of using commercial television in the public interest without forfeiting viewership.

In an effort to reduce widespread illiteracy, the government launched a national self-instruction program. People who were skilled at reading were urged to organize small self-study groups in which they would teach others how to read with instructional materials specifically developed for this purpose. That national appeal produced a disappointing social response, however. Sabido created a year-long serial with daily episodes to reach, enable, and motivate people with problems of illiteracy. The main story line in the dramatic series centered on the engaging and informative experiences of a self-instruction group. The implementation model involved creative translation of social cognitive theory into practice. The most popular soap opera performer was cast in the role of the literate model to take advantage of prestigious modeling. To enhance the impact of modeling through perceived similarity, she recruits a cast of characters who represent the different segments of the population with problems of illiteracy. The self-study group included adolescents, young adults, and middle-aged and elderly individuals. Showing people similar to themselves mastering linguistic skills helps to persuade viewers that they too possess the capabilities to master the skills that were being modeled.

A prior interview study revealed a pervasive self-inefficacy barrier that dissuaded people from enrolling in the national program. Many believed that they personally lacked the capabilities to master such a complex skill. Others believed that reading skills could be acquired only when one is young. Since they had passed the critical period, they could no longer learn to read. Still others felt that they were unworthy of having an educated person devote their time to them. These self-handicapping misbeliefs were modeled by the actors and corrected by the instructor as she persuaded them that they possessed the capabilities to succeed. The dramatic series included humor, conflict, and engrossing discussions of the subjects being read. The episodes showed the models struggling in the initial phases of learning and then gaining progressive mastery and self-pride in their accomplishments.

To provide vicarious motivators to pursue the self-education program, the dramatic series depicted the substantial benefits of literacy both for personal development and for national efficacy and pride. Melodramatic embellishments and emotive music gave dramatic intensity to the episodes to ensure high involvement of the viewers.

Epilogues were used to increase memorability of the modeled messages. To facilitate media-promoted changes, all the instructional material was provided in easily accessible ways by the educational agency. In addition, the series often used real-life settings showing the actors obtaining the instructional material from an actual distribution center and eventually graduating in a graduation ceremony for actual enrollees. The epilogues also informed the viewers of the national self-instruction program and encourage them to take advantage of it. What a powerful motivator it turned out to be. On the day after an epilogue urged viewers to enroll in the literacy program, about 25,000 people descended on the distribution center in Mexico City to get their reading materials!

Millions of viewers watched this series faithfully. Indeed, the viewership exceeded that of the standard soap operas which draw large followings. In the assessment of effects, compared to nonviewers, viewers of the dramatic series were much more informed about the national literacy program and expressed more positive attitudes about helping one another to learn. As shown in Figure 2, enrollment in the program was relatively low in the year before the televised series but shot up abruptly during the year of the series.

As people develop a sense of efficacy and competencies that enable them to exercise better control over their lives, they serve as models, inspiration, and even tutors for others in the circles in which they move. This concomitant socially-mediated influence can vastly multiply the impact of televised modeling. It is interesting to note in this regard that, in the year following this series, another 400,000 people enrolled in the self-study literacy program. Through the socially-mediated path of influence, televised modeling can set in motion an ever widening reverberating process of social change.

Figure 2. Enrollments in the national literacy program in the year prior to, during, and following the televised serial drama. Drawn from data in Sabido, 1981.

4.2 Environmental Sustainability by Stemming Population Growth

As previously noted, burgeoning populations destroy habitats, degrade the environment, and are rapidly eroding biodiversity that plays a critical role in maintaining ecosystems. Through a global effort, about 80 serial dramas are now being widely applied in Africa, Asia, and Latin America to stem the tide of population growth through the communications mode. The host countries that have sought help are struggling with widespread poverty and are on a trajectory of doubling their populations over a relatively short period. For example, the current population of Tanzania is 36 million, the GNP per capita is \$200, the fertility rate is 5.6 children per woman, and the projected population given the current rate is 60 million in twenty five years and 88 million in fifty years. Burgeoning demographic forces overwhelm efforts at social and economic development. Moreover, a relentless population growth severely challenges the ability of countries to promote their national welfare and to preserve their environment. The massive problems wrought by population forces present daunting challenges to sustainability of a healthy global environment for future generations. The population problem is, therefore, the most critical and urgent aspect of environmental sustainability. The massive demographic encumbrance underscores the need to accelerate the types of psychosocial changes that are critical to the reduction of fertility rates and to the promotion of consummatory lifestyles that ensure the sustainability of the environment.

There are many factors that give rise to large families. Children serve as a source of labor and support parents in their older years. Male resistance to contraception and viewing offspring as symbols of male virility adds to the family count. Relegating women to a subservient role in which they have little say about family matters and restricting their educational opportunities commits them to a life of early and frequent childbearing. Stemming the tide of the soaring population, therefore, requires not only economic remedies but changes in social norms and in people's belief systems and behavioral practices. People must be informed about the accelerating speed with which high population growth is occurring, and how frequent childbearing compromises the kind of lives that they and their offspring will be able to lead in contemporary life. With the historic transition to the information era supplanting brawn with intellect in the modern worklife, people need to recognize that educated daughters can be providers not just sons. The mismatch or structural lag of dated normative practices that curtail the education of women in contemporary society also creates major barriers to national progress. Societies can ill-afford to continue stifling the potential of women.

Unless people see family planning as improving their welfare, they have little incentive to adopt it. Simply providing family planning information and contraceptive services is not enough. Indeed, adoption of contraceptive methods tends to be low even with full knowledge and ready access to them. Unlike ethnically objectional approaches to fertility reduction that impose coercive sanctions, violate human rights, or disregard the welfare of women, the sociocognitive approach favors enlightenment and enablement for informed personal choice in childbearing.

Serial dramas designed to reduce the population growth in Mexico (Sabido, 1981), illustrate the creative translation of theory into effective implementation models to reduce fertility rates. Contrasting modeling with accompanying outcomes portrayed the process and social and economic benefits of family planning. The positive family life of a small family, whose wife worked in a family planning clinic, was contrasted with that of a married sister overburdened with a huge family and the accompanying impoverishment and misery. Much of the drama focused on the married daughter from the huge family, who was beginning to experience severe marital conflicts and distress over a rapidly expanding family. She served as the transitional model living in her parents' despairingly crowded and impoverished environment. In a scene leading up the marital crisis, her husband comes home in an amorous mood. She points to the ovulation period on the calendar, he rips up the calendar and she finds herself impregnated again. In a dramatic scene she airs emotionally her desire for a voice in her family life, to cease having more babies, and to break the cycle of poverty that will condemn her family to an innercity slum with inability to care adequately for her children. She turns to her aunt for help, which serves as the vehicle for modeling a great deal of information about how to manage marital discord and machismo behavior, how to deal with male resistance to contraception and family planning, how to communicate openly in the family, and how to escape the many problems caused by a family overburdened with children.

As the drama unfolds, the young couple is shown gaining control over their family life and enjoying the accruing benefits with the help of a family planning center. A priest occasionally appeared in the dramas, emphasizing the need for responsible family planning by limiting the number of offspring to those the family can afford to raise adequately. At the end of some of the programs, viewers were informed in epilogues, about existing family planning services to facilitate media-promoted changes.

Compared to nonviewers, heavy viewers of the dramatic serial were more likely to link lower childbearing to social, economic, and psychological benefits. They also developed a more positive attitude towards helping others plan their family (Sabido, 1981). Records of the family planning centers revealed a 32% increase in the number of new contraceptive users over the number for the previous year before the series was televised. People reported that the television portrayal served as the impetus for consulting the centers. National sales of contraceptives rose from 4% and 7% in the preceding two baseline years to 23% in the year the program was aired (Figure 3). A set of serial dramas broadcast over a 5-year period was accompanied by a 34% drop in birthrates.

4.3 Generalization Through Functional Adaptation

Applications of the generic model in India and Kenya illustrate its generalizability through functional tailoring to diverse cultural practices that spawn large families and impair people's lives. Efforts to bring down the rate of population growth must address not only the strategies and benefits of family planning but also the role and status of women in societies in which they are treated subserviently. In some societies, the equity problems stem from machismo dominance; in others, from marriage and pregnancy at the onset of puberty with no say in the choice of husband or the number and spacing of children; and in still others from dispossession by polygamous marriages. In some societies, women are subjugated to the point where they are repeatedly beaten and are not even allowed to turn on a family radio.

Figure 3. National sales of contraceptives in the two years preceding the serial drama promoting family planning and during the year it was broadcast. Drawn from data in Sabido, 1981

The modeling series in India was designed to raise the status of women as well as promote a smaller family norm. Both issues are vital to the country's social and economic welfare. The population has passed the one billion mark and is on the way to becoming the most populous nation in the world. Because of the strong cultural preference for sons, itinerant radiologists offer cheap ultrasound tests to

identify female fetuses, which are being regularly aborted (Luthra, 1994). The sex-selective abortions are producing growing imbalance of females to males in the society with huge long-term social consequences.

The serial drama addressed a variety of themes about family life in the context of broader social norms and practices (Singhal & Rogers, 1999). The subthemes devoted particular attention to family harmony amidst differences among family members, elevation of the status of women in family social and economic life, educational opportunities and career options for women, son preference and gender bias in child rearing, the detriment of dowry requirement, choice in spouse selection, teenage marriage and parenthood, spousal abuse, family planning to limit family size, youth delinquency, and community development. . Some of the characters personified positive role models for gender equality; others were proponents of the traditional subservient role for women. Still others were transitional models. A famous Indian film actor reinforced the modeled messages in epilogues.

In the differential modeling, an extended family strongly promotes tradition-bound gender inequality. In some episodes other negative models harass, physically abuse or abandon their wives for bringing inadequate dowry. One story line centers on a 14-year old bride forced into an arranged marriage who wants to postpone childbearing until she completes studies toward a law degree. The bridegroom complains to his domineering mother, who strikes the young wife as she rips the books out of her hands and instructs her son that this is the way to deal with spousal insubordination. The young bride is eventually impregnated and dies in childbirth. Antithetical egalitarian families oppose the dowry system and struggle against social tradition to educate their daughters who become teachers, establish an adult literacy school, and build a village sewing school that creates economic opportunities for women. A government development officer is changed by their resilient determination from a self-indulgent patriarch to a supporter of gender equality. The dramatization also models how to achieve a harmonious community despite differing viewpoints. In concurrent enabling modeling, an educated woman assists key characters in the drama to realize the importance of equitable gender social and educational opportunities in modern society, and helps them to make such changes in their families. Some of the women in the drama turn to women's self-help organizations for support and guidance. Epilogues provide addresses where people can obtain additional information and referral to agencies in the localities that can help them.

The melodramatic series was immensely popular, enjoying the top viewership on television and a massive outpouring of letters in the hundreds of thousands from viewers offering advice and support to the characters. A study of a random sample of viewers revealed that the televised modeling promoted attitudes supportive of gender equality and limiting family size. Specifically, viewers reported that they had learned from the program that women should have equal opportunities and a say in decisions that affect their lives, programs advancing the welfare of women should be encouraged, cultural diversity should be respected, and that family size should be limited. The more aware viewers were of the messages being modeled, the greater was their support of women's freedom of choice in matters that affect them and of planning for small families (Brown & Cody, 1991).

Intensive interviews with village inhabitants revealed that the dramatizations sparked serious public discussions about the broadcast themes concerning child marriages, dowry requirements, education of girls, the benefits of small families, and other social issues (Papa, et al., 2000). These social transactions went beyond talk to collective community action aimed at changing inequitable normative practices and improving their social future. Indeed, one village sent to the broadcast center a large poster letter signed by its inhabitants that they will work to eradicate the practice of dowry and child marriages. The enrollment of girls in elementary and junior high schools rose from 10% to 38%. There are, of course, many impediments to sociocultural change but their force weakens over time as new practices gain support and collective benefits outweigh the social costs of dated institutional arrangements. In another village young boys and girls created a self-help action group to promote the changes modeled in the serial drama (Law & Singhal, 1999). The system-level effects illustrate how dramatizations that address the social problems that people face in enabling ways can spawn the development of collective efficacy.

A story line in the Kenya serial drama revolved around the inheritance of land and the impoverishing effect of large families. The contrast modeling involves two brothers, one of whom has a

wife, a son and several daughters, whereas the other brother has multiple wives, nine sons and even more daughters. They squabble over how to pass on the inherited family farm to the next generation. In Kenya, only sons can inherit property. The monogamous brother argues that his lone male heir is entitled to half the land, the polygamous brother insists on dividing the farm into ten small plots. In another concurrent story line a teacher pleads with parents, who want a young daughter to quit school, be circumcised and married off to an arranged partner, to allow her to continue her education which she desperately desires.

The serial drama, which was broadcast via radio to reach rural areas, attracted 40% of the Kenyan population each week as the most popular program on the air. Contraceptive use increased by 58%, and desired family size declined 24%. A survey of women who came to health clinics reported that the radio series helped to persuade their husbands to allow them to seek family planning. Quantitative analyses including multiple controls for possible determinants, to be reported later, revealed that the mass media was a major contributor to Kenya's declining birthrate per woman and reduction in the rate of population growth (Westoff & Rodriguez, 1995).

China is the most populous nation in the world facing a projected doubling of its current population to the two billion mark in about 70 years. This enormous population growth will have devastating effects on ecological systems. Urban areas have achieved replacement level fertility, but the inhabitants in rural areas continue to have larger families. The Chinese one-child policy heightens the traditional cultural preferences for sons. The serial dramas address the discriminatory gender bias in the society and foster psychosocial changes to supplant coercive institutional controls on fertility with voluntary adoption of contraceptive practices and preferences for small families. The dramatizations graphically portray the tragedy and injustice of social practices that force women into arranged marriages they do not want and bearing baby girls no one wants. Viewers are inspired and strengthened by the determination and courage of female characters who challenge the subordinates of women and strive to change the detrimental cultural practices. The gender inequity themes seek to raise the valuation of women and expand enabling opportunities for them to become active participants in the social and economic life of their society.

4.4 Evaluation of Impact

The diverse applications of the sociocognitive model have yielded uniform findings. The dramatic serials are an extraordinarily effective vehicle for reaching vast numbers of people over a prolonged period. Viewers get deeply involved in the lives of the televised characters. In a serial in Tanzania, women spotted at a market the character who plays the negative model and drove him out under a rain of tomatoes and mangos. In India, 400,000 viewers sent letters supporting, advising, or criticizing the various models in the drama. In Brazil, 10,000 people showed up for a filming of a marriage of two of the characters in the drama. These serials are among the most popular on television, each engaging millions of fans. Radio versions of the televised series can reach vast rural populations. Airing of the televised serials is consistently followed by preference for smaller families, adoption of contraceptive methods, and an appreciable drop in birthrates in country after country. Societies with a burgeoning populace need not, nor can afford, to wait until they become economically prosperous to bring birthrates down. Indeed, nations cannot achieve much national progress until they bring their population growth under control.

Changes following the introduction of dramatic serials must be interpreted with caution, of course, because some of the changes may be due to other social influences operating concurrently. Consistent evidence that, in each country, birthrates decline upon introduction of the dramatic serials increases confidence that they had something to do with the changes. A decline is suspect in the context of a declining baseline unless the introduction of the dramatic serial accelerates the rate of decline. When fertility rates decline or even fall below replacement levels, population growth would still occur for some time because of the momentum of large families begetting many offspring of reproductive age. The impact of the serial dramas would be reflected in a decelerating rate of population growth.

Evaluation of the relationship between the serialized dramas and birthrates presupposes knowledge about time lags as to when the changes in reproductive behavior and birthrates should begin to appear. The serial dramas run for at least a year. Some are rerun or broadcast as new sequels. The decision to use contraceptives and to have fewer children can affect birthrates during the serials or shortly thereafter. So the time lags can be short. The time lag for multiplicative socially-mediated effects—where the lifestyle changes of viewers, in turn, alter the lifestyles of their associates—can occur over a variable period. Changes in birthrates over time reflect both the direct and socially-mediated influences. The presence of mediated effects in the time-lag results is of little pragmatic concern because the more positive influences televised modeling sets in motion the better. But these effects do complicate evaluation of how much the observed changes are due directly to the serial dramas alone. Interviews with viewers about their decisions about contraceptive usage and the desired number and spacing of children could tell us what time lag to expect. Interviews could also identify whether the decision to limit family size was due to the serial dramas, to the lifestyle changes of viewers affected by the drama, societal initiatives or to some other sources.

Analyses of social impact as a function of level of exposure to the dramatizations speaks more directly to the issue of causation. The more the people watch the programs the more they talk about the issues that are aired, the more supportive they are of gender equality, the higher their perceived efficacy to regulate their reproductive behavior, and the more likely they are to adopt contraceptive methods. Many people report that their valuational and behavioral changes were influenced by exposure to the broadcasts. Research by Westoff and Rodriquez (1995) indicate that the conditional relation is not an artifact that the more advantaged and efficacious individuals are the heavier viewers. The impact of media exposure on adoption and consistent use of new methods on contraception remained after controlling for life-cycle status, number of wives and children, and a host of socioeconomic factors such as ethnicity, religion, education, occupation and urban-rural residence (Figure 4). Internal analyses of evaluation surveys revealed that the media influence was a major factor in raising motivation to limit birthrate and adopt contraception practices.

Figure 4. Percentage of women adopting contraceptive methods depending on the amount of exposure to family planning communications in the media. The white bars report the level of contraceptive use after controlling for the women's demographic and socioeconomic characteristics and a host of other potential determinants (Westoff & Rodriquez, 1995).

Countries containing regions with separate transmitters provide a natural control group. Under these conditions, the serial dramas can be aired in one region with another serving as a control. Following the formal evaluation, the serial can be aired in the control region and its effects measured. Comparative tests of this type are most informative if the regions do not differ initially in population characteristics, in governmental initiatives that can affect birthrates, or in their preceding birthrate trajectories. With only two regions available, random assignment of the intervention cannot ensure that the regions are similar to begin with. Should they differ at the outset, statistical adjustments can be made for the difference.

Such a controlled study was conducted in Tanzania to compare contraception use in broadcast areas that received a radio dramatic series with an area that did not (Rogers, et al., 1999). The program targeted both family planning and sexual practices that increase vulnerability to infection with the AIDS virus. This study sheds light on a number of issues. Although, at the outset, the populace was well informed about contraception and AIDS prevention and were favorably disposed toward such practices, they did not translate these attitudes into action. The problem was neither informational nor attitudinal but motivational. The dramatic series provided the impetus for action.

Compared to the control region, the serialized dramatizations raised viewers' perceived efficacy to determine their family size, decreased the desired number of children, increased the ideal age of marriage for women, increased approval of family planning methods, stimulated spousal communication about family size, and increased use of family planning services and adoption of contraceptive methods. Figure 5 shows the mean number of adopters of contraceptive methods per clinic over time in the broadcast and control regions. Both regions increased at the same rate during the prebroadcast period.

The adoption rate increased only slightly in the control region but at an increased rate in the broadcast region. These effects were replicated when the serial was later broadcast in the control region. The replicated effects provide further support for a genuine conditional relation.

Figure 5. Mean number of new family planning adopters per clinic in the Ministry of Health Clinics in the broadcast region and those in the control region. The values left of the dotted line are adoption levels prior to the broadcast; the values between the dotted lines are adoption levels when the serial was aired in the broadcast region but not in the control region; the values to the right of the dotted line are the adoption levels when the serial was aired in both the broadcast region and previous control region (Vaughan, Rogers, & Swalehe, 1995).

As in the Kenya evaluation, the more often people listened to the broadcasts, the more the married women talked to their spouses about family planning and the higher the rate of adoption of contraceptive methods (Figure 6). These diverse effects remain after multiple controls for other potential determinants, including exposure to other radio programs with family planning and AIDS contents, prebroadcast levels and changes in education, increase access to family planning clinics, radio ownership and rural-urban differences.

Seventeen segments were included to prevent the spread of the AIDS virus. It is transmitted heterosexually by long-distance truckers in truck stop hubs with hundreds of prostitutes. About 60% of them are infected and about a third of the truck drivers are also infected. The common belief was that AIDS is transmitted by mosquitoes and some of the males believed that condoms caused infection and having sexual intercourse with a virgin would cure AIDS. The program quickly debunked the false beliefs. In the contrast modeling, the negative trucker model engages in risky sex with multiple partners; the positive model has adopted safer sex practices and cut back on the number of partners; and a transitional model begins with risky practices but adopts safer ones. The truckers using the safer practices try unsuccessfully to talk their friend into changing his risky ways. He refuses. His wife fears that she will get infected. The community pools its resources to set up the wife in a business. She leaves her husband who eventually gets infected and dies of AIDS.

Compared to residents in the control region, those in the broadcast region increased belief in their personal risk of HIV infection through unprotected sexual practices, talked more about HIV infection, reduced the number of sexual partners, and increased condom use (Vaughan, et al, 1995, 2000). The number of condoms distributed annually by the National AIDS program remained low in the control region, increased substantially in the broadcast region, and increased significantly in the control region after exposure to the broadcast.

Figure 6. Impact of degree of involvement in the serial drama on women's spousal discussion of family planning and use of contraceptive methods. (Rogers, et al., 1999).

Perceived self-efficacy emerged as significant predictor of reproductive behavior and risky sexual practices. The enhancement of communication with significant others about matters of concern and solutions to them is another predictor of personal and social change. In sum, convergent evidence from diverse methodologies, multiple forms of assessment, cultural milieus, adaptational themes, and domains of functioning lend support to the contributory role of enabling dramatizations of lifestyle options and their benefits to personal and social change.

4.5 Sustainability Development Through Modification of Consummatory Lifestyles

The present chapter focused on environmental conservation and sustainability through population stabilization. The cross-cultural applications attest to the generalizability of the generic model with appropriate functional adaptation. It lends itself readily to other types of lifestyle changes, such as environmental conservation and consummatory practices to promote environmental sustainability. For

example, an Indian serial centered on preserving the environment motivated villagers to take collective action to improve sanitation, reduce potential health hazards, adopt fuel conservation practices to reduce pollution and launch a tree-planting campaign (Papa, et al., 2000). Moreover, they persuaded other villages to institute similar environmental practices.

If people are to make decisions supportive of sustained development, they need to be informed of the ecological costs of their consummatory practices and enabled and motivated to turn enlightened concern into constructive courses of action. This is best achieved through multiple modes of communication (Singhal & Rogers, 1999). Many of the lifelong consummatory habits are formed during childhood years. It is easier to prevent wasteful practices than to try to change them after they have become deeply entrenched as part of a lifestyle.

To address the environmental problems created by over-consumption, PCI produced a video, *The Cost of Cool*, for distribution to schools that focuses on the buying habits of teenagers (PCI, 2001). It tracks the ecological costs of the manufacture of everyday items such as T-shirts and sneakers. Providing teenagers with sound information helps them make informed choices in their buying habits. As one viewer put it, "I'll never look at a T-shirt in the same way". Popular entertainment, formats such as music concerts, recordings and videos, provide another vehicle for reaching mass youth populations, with themes addressing critical social issues, substance abuse, violence, teen sexuality, and gender equality.. The impact of these complimentary approaches requires systematic evaluation. The increasing magnitude of the environmental problem calls for multifaceted efforts to alter behavioral practices that degrade the ecological supports of life.

The growing deterioration of the global environment and accelerated extinction of many forms of life present the fundamental challenge in this new century. Humans have embarked on an unbridled trajectory that places them at risk of joining the ranks of endangered species. The ecological correctives require a global commitment to an environmental ethic that guides and supports a human ecology that can secure a sustainable future.

5. NOTE

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