



ELSEVIER

Landscape and Urban Planning 56 (2001) 53–60

LANDSCAPE
AND
URBAN PLANNING

www.elsevier.com/locate/landurbplan

Assessing mangrove products and services at the local level: the use of focus groups and individual interviews

Michael D. Kaplowitz*

Michigan State University, 311A Natural Resources, East Lansing, MI 48824, USA

Received 17 July 2000; received in revised form 13 February 2001; accepted 18 May 2001

Abstract

Information on the array of mangrove products and services used, understood, and perceived at the local level may help decision makers, stakeholders, and others make better resource management decisions. Qualitative research methods can reveal information on ecosystem products and services at the local level. In-depth interviews have been used to collect data on local use of mangrove wood and wood products. This paper reports on the use of both focus groups and individual interviews to learn from local beneficiaries about the array of ecosystem products and services associated with a mangrove ecosystem and explores the relative importance of wood products to local mangrove ecosystem beneficiaries. The analysis shows that focus groups and individual interviews reveal different information. Furthermore, the data show that the local resource beneficiaries do not view wood products as the most important service of the mangrove ecosystem. © 2001 Elsevier Science B.V. All rights reserved.

Keywords: Qualitative methods; Focus groups; Interviews; Ecosystem services; Mexico

1. Introduction

Kovacs (1999) recently reported on the utility of structured interviews for assessing mangrove use at the local level and found them to be an efficient and adequate means for collecting information on local use of mangroves in Teacapan-Agua Brava Lagoon, Mexico (see Fig. 1). While some investigators have focused on the economic importance of mangrove trees and their associated products (e.g. Kokwaro, 1985; Bacongus and Sinohin, 1994), others point out that the economic value of intact mangrove habitats “vastly outweigh those of cutting the trees” (Bennet and Reynolds, 1993, p. 359). The results of Kovacs’ study (Kovacs, 1999) suggest that mangrove

wood products are perceived by local beneficiaries as the most important resource associated with their mangrove ecosystem.

While Kovacs (1999) examined local fishermen’s uses and perceptions of mangrove wood products, the study did not address the broad range of ecosystem services that have been linked to mangrove ecosystems. Resource economists, conservationists, ecologists, and others have identified valuable consumptive and non-consumptive uses as well as biogeochemical functions associated with mangrove ecosystems (e.g. Costanza et al., 1989; Aylward and Barbier, 1992; Ruitenbeek, 1992; Bennet and Reynolds, 1993; Barbier, 1994; Farber, 1996; Janssen and Padilla, 1996; Bann, 1997; Barbier et al., 1997). Information on the array of benefits flowing from mangrove ecosystems perceived at the local level may help decision makers, stakeholders, and others make better resource

* Tel.: +1-517-355-101; fax: +1-517-353-8994.

E-mail address: kaplowit@msu.edu (M.D. Kaplowitz).



Fig. 1. Mexico and mangrove research sites.

management decisions. While some point to a continuing unresolved tension between the scientist's view and the local view of place and function, increasingly researchers are using qualitative methods to learn about local views of ecosystems (e.g. Kovacs, 1999; Kaplowitz and Hoehn, 2001). This paper builds on Kovacs (1999) by suggesting that qualitative research methods may help reveal information on a range of mangrove ecosystem products and services important to people at the local level. The paper reports on the use of focus groups and individual interviews to learn from local beneficiaries about the ecosystem products and services associated with the mangroves of Chelém Lagoon, Mexico (see Fig. 1).

The term mangrove refers to a number of tree species capable of living in saltwater or salty soils. The places where mangroves grow are among the world's most productive ecosystems. Mangrove ecosystems are found in intertidal areas of sheltered coastlines called lagoons and estuaries. Mangrove wetlands maintain high levels of biological productivity; export nutrients to outside waters; and provide habitat for valuable plant and animal species (Clark, 1996). Researchers have identified mangrove ecosystems as important to the subsistence livelihoods of tropical coastal communities (Hamilton and Snedaker, 1984; Hamilton et al., 1989; Kaplowitz, 1999). Mangrove ecosystems may be directly exploited by extracting goods such as fish, agricultural products, wildlife, and wood (Kunstadter et al., 1985; Hirsch

and Mauser, 1992; Ruitenbeek, 1992; Bennet and Reynolds, 1993; Bann, 1997; Farnsworth and Ellison, 1997; Kovacs, 1999). Likewise, mangrove ecosystems and their ecological functions potentially provide an array of important indirect services for people such as prevention of storm damage, flood and water control, support of fisheries, waste absorption, recreation, and transport (Barbier, 1994; Barbier et al., 1997). Furthermore, mangrove wetlands may be significant sources of benefits that are independent of human use such as biodiversity services (Aylward and Barbier, 1992; Barbier, 1994; Barbier et al., 1997). While many of these services and their supporting ecological functions are apparent to scientists, it is unclear if and how local beneficiaries perceive of such services.

As part of an effort to identify the range of relevant ecosystem services for a study of the economic value of mangrove ecosystems in northern Yucatán, Mexico, a series of qualitative inquiries were undertaken. Two qualitative research methods were used — focus groups and individual interviews. Focus groups are carefully planned discussions designed to learn about subjects' perceptions on a defined area of interest in a permissive, non-threatening environment. They are conducted by a skilled moderator who follows a discussion guide and involve as few as two to as many as 12 informants. Individual interviews (also called unstructured, exploratory, intensive, in-depth, and depth interviews) are guided conversations whose goal is to elicit from interviewees (also called informants)

detailed material that can be used in subsequent analysis.

The collected data were analyzed to reveal respondents' uses and perceptions of their shared mangrove lagoon as well as to test a range of research hypotheses. This paper addresses the use of focus groups in addition to individual interviews to learn about the products and services associated with the mangrove lagoon at the local level. Specifically, the research examines the hypothesis that individual interviews are sufficient to reveal the range of local information about local use of a mangrove lagoon. In particular, the paper examines the relative importance of mangrove wood products to resource beneficiaries in the Chelém Lagoon region of Mexico's Yucatán Peninsula. Research findings concerning conflicting coastal management agendas of stakeholders in the Chelém Lagoon region; statistical analysis of focus group and individual interview data; the role of qualitative methods in economic valuation research; and the economics of collecting chivita (*Melongena melongena*) are

presented elsewhere (Kaplowitz, 1999; Kaplowitz, 2000; Kaplowitz and Hoehn, 2001; Kaplowitz, 2001).

2. Methods

The communities of Chelém and Chuburná in Yucatán, Mexico, are respectively, about 3 and 15 km west of the port city of Progreso (see Fig. 2). They are situated along a stretch of coastal fringe that borders the Gulf of Mexico on one side and Chelém Lagoon on the other. Families that have traditionally relied upon the natural resources of the region, including the mangrove wetland, for their subsistence and livelihood, populate these villages. The year-round inhabitants of Chelém and Chuburná share similar socio-economic characteristics and have roughly 475 and 215 households, respectively (Instituto Nacional de Estadística Geografía e Informática (INEGI, 1992)). Traditionally, these communities have used a combination of activities for their

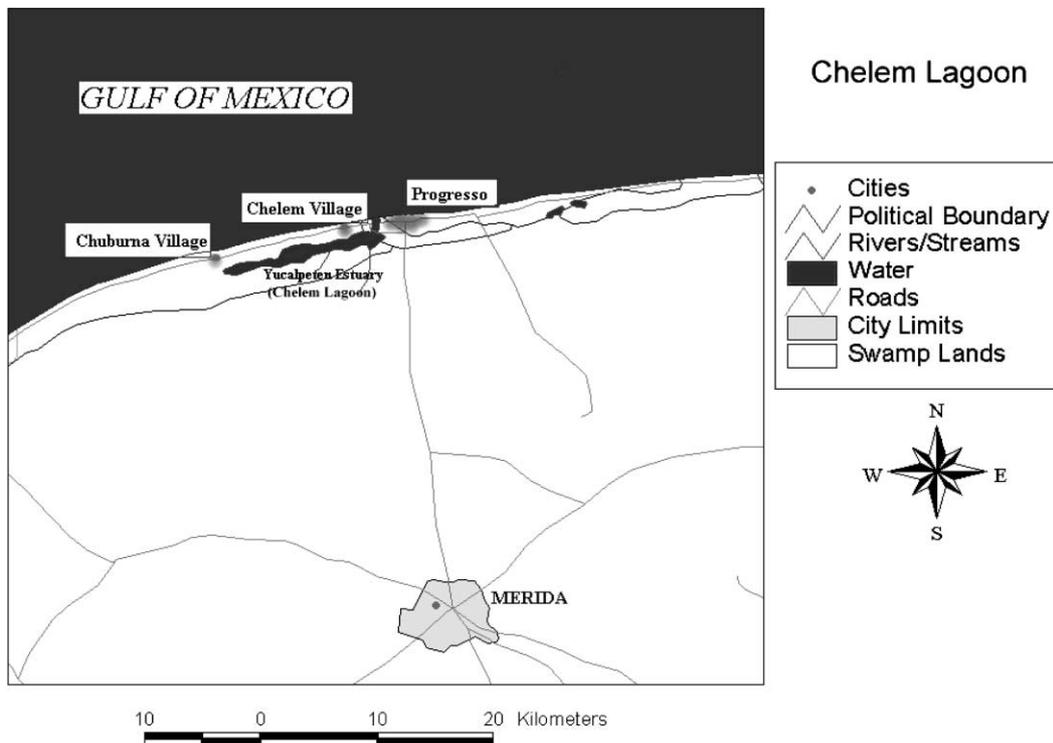


Fig. 2. Chelém Lagoon.

subsistence and economic gain; they have regularly handled long periods (November–March) of seasonal bad weather with a multiple use and activity strategy of combining fishing in the sea and lagoons, small scale salt extraction, agriculture, and tourism service activities (Paré and Fraga, 1994).

A total of 97 year-round residents from the two communities were interviewed in one of 12 focus groups and 19 individual in-depth interviews. Research assistants canvassed randomly selected sections of the target communities at staggered times of day to recruit participants. The focus groups were comprised of between four and seven individuals of the same gender from the same village. No respondent or their family members participated in more than one focus group or interview. More than a third of the participants were women. The focus groups and individual interviews were designed and implemented following the generally accepted practices of Morgan (1996, 1997) and Weiss (1994), respectively. A professional moderator using a specially prepared discussion guide conducted the focus groups and individual interviews. The interviewer used the same discussion guide that was used in focus groups to guide the one-on-one conversations. All focus group and individual interviews were tape-recorded and subsequently transcribed.

3. Analysis

The 12 focus group and 19 individual interview transcripts resulted in more than 500 pages of text. An iterative, grounded theory approach (Strauss and Corbin, 1990) was used to code the transcripts. First, almost every word of a randomly selected subset of transcripts was coded (open coding). Next a set of thematic or summary codes was developed (axial coding). When no new open codes were necessary to code additional transcripts, all of the study's transcripts were axial coded. The final iteration of coding the texts (selective coding) focused on organizing the data into categories relevant to respondents' resource use, value, and understanding. The coding categories used attempted to accommodate the uses, products, and services that researchers have associated with mangrove ecosystems (e.g. Aylward and Barbier, 1992; Hirsch and Mauser, 1992; Ruitenbeek, 1992;

Bennet and Reynolds, 1993; Barbier, 1994; Seijo et al., 1995; Janssen and Padilla, 1996; Acreman et al., 1997; Bann, 1997; Barbier et al., 1997; Spaninks and van Beukering, 1997; Carson, 1998; Costanza et al., 1998). The data analysis used multiple-response variables to record instances that focus group discussions and individual interviews raised particular topics concerning mangrove ecosystem uses and services. The reported research builds on the work of Kovacs (1999) by testing whether using focus groups reveals different information from that learned by using individual interviews about mangrove resource use and by exploring the relative importance of mangrove wood services to local beneficiaries of the Chelém Lagoon mangrove ecosystem.

4. Results

The variable, interview type, recorded the type of interview (e.g. focus group or individual interview) associated with each case of coded data. Nine other variables captured those mangrove ecosystem uses and services raised by respondents during the focus groups and individual interviews. Table 1 groups the nine topics raised by participants concerning use and functions of the mangrove ecosystem into four classes: extractive uses, recreation, climate amelioration, and habitat manipulation. Obviously, not all ecosystem services, uses and functions that scientists associate with mangrove ecosystems (e.g. oxygen production, nutrient cycling) were raised by locals during their sessions.

Participants raised and discussed snail collection (locally called "chivita", known scientifically as *M. melongena*) in all of the focus groups (100%) and in virtually all of the individual interviews (95%). Likewise, finfish fishing (e.g. mojarra fish, various species of *Calamus* sp.) was raised in almost all of both types of interviews (92 and 90%). Participants discussed recreation and storm protection in fewer than half of the sessions. Interestingly, participants in focus groups raised and discussed mangrove wood collection in half of the sessions, while wood collection and use was raised in only 21% of the individual interviews. The topic of a Ducks Unlimited of America, Mexico, and Canada (DUMAC) duck-habitat restoration project was raised in only one focus group (8%) but was

Table 1
Mangrove ecosystem use services

Class of service	Topic variable	Example	Raising topic (%)		Significant difference test ^a
			Focus groups	Individual interviews	
Harvestable products	Snail collection	Chivita (<i>M. melongena</i>); food; for sale	100	95	
	Crab collection	Used as bait; frozen for 2-month octopus season	92	42	—*
	Finfish fishing	Corvinato fish (<i>Lepholatilus</i> sp.); mojarra fish (<i>Calamus</i> sp.); hook and line; nets used day and night	92	90	
	Salt extraction	Used to be salt ponds; changes in area ended it	92	37	—*
	Shrimp	Sometimes seawater brings shrimp (<i>Penaeus</i> sp.) to lagoon	75	16	—*
	Mangrove wood	Charcoal production; fuelwood; building material	50	21	—**
Recreation	Recreation	Take guests for rides; picnics; celebrate mass	42	32	
Climate amelioration	Storm protection	Protect boats from storms; helps if water rises	42	16	
Habitat manipulation	Duck habitat project	Built a dike; destroyed chivita and wetland	8	63	—*

^a Based on a Chi-square test of homogeneity of focus groups and individual interviews data.

* Significant at the 99% level.

** Significant at the 90% level.

raised for discussion in 12 of the 19 individual interviews (63%). Other services with seemingly different frequencies as between the two methods included crab collection, salt extraction, and shrimp fishing. However, apparent or absolute differences in frequencies may not be statistically significant when sample size and distributions are taken into account.

To statistically test the hypothesis that the focus groups raised different information about mangrove use services than the individual interviews, a Pearson Chi-square test of the homogeneity of the focus group and interview data was undertaken. The analysis tested the null hypothesis that, in the sample population, the same percentage of focus groups and individual interviews raised each of the various wetland services for discussion. That is, the observed frequencies were tested to see if their difference from the expected frequencies was statistically significant. The analysis shows that the null hypothesis that the two interview types result in the same frequency of a topic being raised was rejected for five use service variables — crab collection ($P = 0.006$); shrimp fishing ($P = 0.001$); salt extraction ($P = 0.003$); wood collection ($P = 0.093$); and duck habitat project ($P = 0.003$). The focus

group data on mangrove resource use significantly differed from the individual interview data.

Mangrove ecosystems, like other complex environmental and natural resources, are potential sources of nonuse services (Hamilton et al., 1989; Aylward and Barbier, 1992; Barbier, 1994; Barbier et al., 1997; Carson, 1998). Nonuse services are those benefits to people that do not flow from direct use of the ecosystem (Freeman, 1993). Examples of nonuse services include: the value of knowing that a resource simply exists, the value some people attribute to some potential use of a resource, and the value of knowing that future generations will have a resource. Table 2 illustrates the collected data on nonuse services associated with the Chelém Lagoon mangrove wetland. The respondents associated aesthetic benefits as well as nongame wildlife habitat services with the mangrove ecosystem. While every focus group raised and discussed the ecosystem's beauty, only 11% of the individual interviews raised the mangrove ecosystem's aesthetics. As Table 2 shows, the difference in aesthetic service information raised by the two methods was statistically significant. The data demonstrate that while both types of interviews reveal use and nonuse

Table 2
Mangrove ecosystem nonuse services

Topic variable	Example	Raising topic (%)		Significant difference test ^a
		Focus groups	Individual interviews	
Beauty	Wetland is beautiful; a pretty place to see; enjoy the views	100	11	–*
Nongame species habitat	Flamingoes; crocodiles; heron; turtles; seagulls	67	42	

^a Based on a Chi-square test of homogeneity of focus groups and individual interviews data.

* Significant at the 99% level.

service information at the local level about the mangrove ecosystem, the individual interview information is different from that of the focus groups.

5. Discussion

Individual interviews and focus group results reveal that a complete set of ecosystem use and product information is not obtained by either method. Furthermore, many mangrove ecosystem functions widely recognized as important by scientists do not seem apparent to local beneficiaries. The analysis reveals that focus groups lead to different mangrove use and nonuse information at the local level than individual interviews. Furthermore, the results of Kovacs (1999) that mangrove wood products are the most important ecosystem service to local fishers in Teacapan-Agua Brava Lagoon, Mexico are not true for elsewhere in Mexico. Both the individual interviews and the focus groups reveal significantly less information about wood products and services than information about how local fishers value lagoon fishery services supported by the mangrove ecosystem. In particular, the research revealed that collection of a particular species of snail (“chivita”) (*M. melongena*) from the muddy bottom of Chelém Lagoon has become the most significant local resource use service associated with the mangrove ecosystem. As one respondent explained:

“Chivita are the source of livelihood for the village, if they are taken away or disappear, how are people going to live. They are the only thing that sustains some people and families (ID#37).”

The sessions left little doubt that the mangrove ecosystem’s ability to provide habitat and fishing opportunities for chivita is their utmost mangrove ecosystem concern. Both focus groups and individual

interviews were dominated by discussion of chivita collection and the deteriorating conditions of the lagoon as a chivita fishery. While both focus groups and individual interviews revealed chivita collection as the most frequently mentioned ecosystem service, the two research methods revealed different information concerning other ecosystem products, uses, and services.

One topic that received dramatically different treatment by participants concerned an international environmental groups’ duck habitat project. The project by Ducks Unlimited of America, Mexico, and Canada (DUMAC) was only mentioned in passing during one focus group but raised in a majority of the interviews. That is, only one focus group raised the DUMAC project in a passing reference to some villagers’ ability to find occasional work as hunting guides. However, in 12 out of 19 individual interviews, respondents voiced their frustration and concern about the DUMAC project. This was made clear by the repeated utterances concerning members of the communities’ plans to “blow up” the DUMAC project. It was clear to respondents that the DUMAC project was harming the ecosystem and interfering in their ability to collect chivita. As a respondent explained:

“We have problems with...the [DUMAC] project. They said they would maintain the flow of water and fish, but they closed the flow of water and fish off. Now there are no fish, no chivita, no wetland...we need to open the dike so we can live, live from the wetland (ID#29).”

It seems that individual interviews afforded an opportunity for individuals to share information that they otherwise did not feel comfortable sharing in a group setting.

Conversely, the focus groups resulted in more information about wood collection and use services

than the individual interviews ($P = 0.10$). While participants in the sessions mentioned the collection of mangrove wood, at best, it appears that mangrove wood services are a minor use associated with the Chelém Lagoon ecosystem. One respondent reported “a few people who live way over there collect mangrove wood to make charcoal” (ID#7). Another pointed out that, “mangroves are sometimes used to build houses” (ID#36). However, the vast majority of respondents who discussed mangrove wood services described such activities in the past tense, as ways of old or of those living far away. As one respondent put it, “there used to be people who made a living collecting wood and making charcoal” (ID#223). The reasons offered by participants for the decline or lack of local use of mangrove wood services include: the ready availability of gas as a fuel source and manmade building materials (ID#6).

The use of focus groups in conjunction with individual interviews proved to be relatively easy. The two methods relied upon the same discussion guide, the same use of non-directive probes, both were tape-recorded, and both used the same qualitative data analysis method. While the focus groups used a specially trained “moderator”, the “enumerator” for the individual interviews received the same training and instructions. The primary differences in the implementation of the two methods concerned the recruitment of participants, the dynamic of each session (i.e. one-on-one or group sessions) and the logistics of the interviews and groups. The focus groups required canvassing for participants, securing a meeting place, and the compensation of participants with a “gift” (local customs did not allow for the payment of cash honoraria). The interviews required the same type of canvassing for individuals willing to take part in a usually contemporaneous interview. The relative ease and complimentary of conducting both types of qualitative research suggests the value of being able to collect local resource information using both one-on-one interviews and focus groups.

6. Conclusion

The results demonstrate that focus group interviews reveal different information about mangrove services at the local level than do individual interviews. The

results show that the communities of Chelém and Chuburná, Mexico see wood collection as a minor benefit associated with their mangrove ecosystem. The results shows the value of using both individual interviews and focus groups to learn from local beneficiaries about their ecosystem and natural resources. While these findings support Kovacs’ (1999) assertion that individual interviews are efficient means for collecting resource use information, they go further and demonstrate that qualitative methods can reveal a wide range of use and nonuse services associated with a mangrove ecosystem. The results also demonstrate that reliance on one qualitative research method may be inadequate for assessing all local benefits associated with mangrove resources. The results suggest the value of using a multiple methods research approach for learning about environmental and natural resources from local beneficiaries.

Acknowledgements

This paper is based on research made possible, in part, by the generous support of the Inter-American Foundation (IAF) and the Organization of American States (OAS).

References

- Acreman, M., Barbier, E.B., Knowler, D., 1997. Economic Valuation of Wetlands. Ramsar Convention Bureau, Gland, Switzerland.
- Aylward, B., Barbier, E.B., 1992. Valuing environmental functions in developing countries. *Biodiversity Conserv.* 1, 34–50.
- Baconguis, S.R., Sinohin, V.O., 1994. Avicennin: a mangrove species for coastal community livelihood and ecosystem enhancement. *Philippine Lumberman* 40, 19–24.
- Bann, C., 1997. An Economic Analysis of Alternative Mangrove Management Strategies in Koh Kong Province, Cambodia. Economy and Environment Program for Southeast Asia, Singapore.
- Barbier, E.B., 1994. Valuing environmental functions: tropical wetlands. *Land Eco.* 70, 155–173.
- Barbier, E.B., Acreman, M., Knowler, D., 1997. Economic Valuation of Wetlands: A Guide for Policy Makers and Planners. Ramsar Convention Bureau, Department of Environmental Economics and Management, University of York, Cambridge, UK.
- Bennet, E.L., Reynolds, C.J., 1993. The value of a mangrove area in Sarawak. *Biodiversity Conserv.* 2, 359–375.

- Carson, R.T., 1998. Valuation of tropical rainforests: philosophical and practical issues in the use of contingent valuation. *Ecol. Eco.* 24, 15–29.
- Clark, J.R., 1996. *Coastal Zone Management Handbook*. CRC Press, Boca Raton, FL.
- Costanza, R., Farber, S.C., Maxwell, J., 1989. Valuation and management of wetland ecosystems. *Ecol. Eco.* 1, 335–361.
- Costanza, R., d'Arge, R., de Groot, R., Farber, S., Grasso, M., Hannon, B., Limburg, K., Naeem, S., O'Neill, R.V., Paruelo, J., Raskin, R.G., Sutton, P., van den Belt, M., 1998. The value of the world's ecosystem services and natural capital. *Ecol. Eco.* 25, 3–15.
- Farber, S., 1996. Welfare loss of wetlands disintegration: a Louisiana study. *Contemp. Eco. Policy* 14, 92–106.
- Farnsworth, E.J., Ellison, A.M., 1997. The global conservation status of mangroves. *Ambio* 26, 328–334.
- Freeman, A.M., 1993. *The Measurement of Environmental and Resource Values, Resources for the Future*, Washington, DC. Resources for the Future.
- Hamilton, L., Dixon, J., Owen Miller, G., 1989. Mangroves forests: an undervalued resource of the land and sea. In: Borgese, E.M., Ginsburg, N., Morgan, J.R. (Eds.), *Ocean Yearbook*, Vol. 8. University of Chicago Press, Chicago.
- Hamilton, L., Snedaker, S., 1984. *Handbook for Mangrove Area Management*. East/West Center, Hawaii.
- Hirsch, D., Mauser, A., 1992. *The Economic Values of Mangroves: Two Case Studies — Mida Creek and Funzi Bay*. University of Amsterdam, Amsterdam.
- Instituto Nacional de Estadística Geografía e Informática (INEGI), 1992. *Yucatán-resultados definitivos: Datos por AGEB urbana. XI censo general de población y vivienda, 1990*. Instituto Nacional de Estadística, Geografía e Informática, Aguascalientes, Mexico.
- Janssen, R., Padilla, J.E., 1996. *Valuation and Evaluation of Management Alternatives for the Pagbilao Mangrove Forest*, Vol. 9. Institute for Environmental Studies, Amsterdam.
- Kaplowitz, M.D., 1999. Conflicting wetland agendas in the Yucatan. *Int. Rev. Compar. Public Policy* 11, 141–156.
- Kaplowitz, M.D., 2000. Statistical analysis of sensitive topics in group and individual interviews. *Qual. Quant.: Int. J. Methodol.* 34, 419–431.
- Kaplowitz, M.D., 2001. Uncovering economic benefits of Chivita (*Melongena melongena* Linnaeus, 1758 & *Melongena corona bispinosa* Philippi, 1844). *J. Shellfish Res.* 20 (1) 295–299 (June 2001).
- Kaplowitz, M.D., Hoehn, J.P., 2001. Do focus groups and personal interviews reveal the same information for natural resource valuation? *Ecol. Eco.* 36, 237–247 (February 2001).
- Kokwaro, J.O., 1985. The distribution and economic importance of the mangrove forests of Kenya. *J. East Afr. Nat. Hist.* 75, 1–12.
- Kovacs, J.M., 1999. Assessing mangrove uses at the local scale. *Landscape Urban Plan.* 43, 201–208.
- Kunstadter, P., Bird, E.C.F., Sabhasri, S., 1985. *Man in the Mangroves: The Socio-Economic Situation of Human Settlements in Mangrove Forests*. United Nations University, Tokyo.
- Morgan, D., 1997. *Focus Groups as Qualitative Research*. Sage, Thousand Oaks, CA.
- Morgan, D.L., 1996. Focus groups. In: Hagan, J., Cook, K.S. (Eds.), *Annual Review of Sociology. Annual Reviews*, Palo Alto.
- Paré, L., Fraga, J., 1994. *La costa de Yucatán: Desarrollo y vulnerabilidad ambiental*. Instituto de Investigaciones Sociales, Universidad Nacional Autónoma de México. Mexico.
- Ruitenbeek, H.J., 1992. *Mangrove Management: An Economic Analysis of Management Options with a Focus on Bintuni Bay, Irian Jaya*, Vol. 8. Environmental Management Development in Indonesia Project (EMDI) and Dalhousie University, Jakarta and Halifax.
- Seijo, J.C., Cabrera, M.A., Eúan, J., Perez, E.P., 1995. *Valuación económica de los servicios ecologicos del ecosistema de manglar de Isla del Carmen*. Campeche, CINVESTAV-IPN, Mérida, Mexico.
- Spaninks, F., van Beukering, P., 1997. *Economic Valuation of Mangrove Ecosystems: Potential and Limitations*, Vol. 14. Institute for Environmental Studies, Amsterdam.
- Strauss, A., Corbin, J., 1990. *Basic of Qualitative Research: Grounded Theory Procedures and Techniques*. Sage, Newbury Park, CA.
- Weiss, R.S., 1994. *Learning from Strangers: The Art and Method of Qualitative Interview Studies*. The Free Press, New York.

Michael D. Kaplowitz is an assistant professor in the Department of Resource Development at Michigan State University. He holds BS degree in industrial economics from Union College in Schenectady, New York and JD from Duke University School of Law. After practicing law in New York City for a more than 5 years, he returned to school and received an MA degree in latin American studies and international economics from Johns Hopkins University and a PhD in resource development and resource economics from Michigan State University. Since 1997, he has been a faculty member in the Department of Resource Development, where he teaches environmental and natural resource law and policy. His research touches on such subjects as the opportunity costs to US businesses of the US embargo of Cuba, the economics of wetland ecosystems, and the use of transferable development rights to preserve agricultural lands. His work has been supported by the Ford Foundation, Inter-American Foundation, Michigan Great Lake Protection Fund, Michigan Sea Grant, Organization of American States, US Environmental Protection Agency, as well as other public and private agencies. He has authored articles, edited books, presented professional papers, and has appeared before the US Senate as an expert witness. His refereed articles have appeared in *Agriculture and Human Values*, *Duke Environmental Law and Policy*, *Ecological Economics*, *Quality and Quantity*, and other professional journals. Recently, he published *Property Rights, Environment, and Economics* with JAI Press Inc.