

# **ICENS/IDRC Research Project**

## **Environmental Risks of Cadmium in Jamaica**

### **FACILITATORS' REPORT ICENS/IDRC STRATEGIC ACTION PLANNING WORKSHOP REPORT**

*MARCH, 2005*

Prepared for the:

**International Centre for Environmental and Nuclear Sciences  
and the**

**International Development Research Center**

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## Abbreviations & Acronyms

BAB	Blossom Anglin-Brown
BMI	Body Mass Index
CARDI	Caribbean Agricultural Research and Development Institute
Cd	Cadmium
CFNI	Caribbean Food and Nutrition Institute
COMSATS	Commission for Science & Technology for Sustainable Development in the South
GSC	Geological Survey of Canada
ICENS	International Centre for Environment and Nuclear Sciences
IDRC	International Development Research Centre
MoA	Ministry of Agriculture
NW	Nadia Williams
PR	Project Researcher
RADA	Rural Agricultural Development Agency
RPPD	Rural Physical Planning Division
S&S Task Force	Sampling and Survey Task Force
SAPW	Strategic Action Planning Workshop
SRC	Scientific Research Council
STATIN	Statistical Institute of Jamaica
SWU	Social Work Unit
ToR	Terms of Reference
UFMT	Federal University of Mato Grosso

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# Background

## 1.0 General Context

The International Centre for Environmental and Nuclear Sciences (ICENS), formerly the Centre for Nuclear Sciences was established in 1984. ICENS became one of the first 10 institutions selected in 1994 as nodes of the Network of International Centres of Excellence established under the aegis of the Commission for Science and Technology for Sustainable Development in the South (COMSATS), which was established by the Heads of Governments of the G77. ICENS is a multi-disciplinary facility with multi-elemental analytical capabilities, operating with a core staff and specialist collaborators within the university community and outside. The Centre carries out research, training, and service functions and is available to local and foreign scientists and technologists. Its objective is to provide scientific solutions to developmental problems and to help build the human resources and information bases necessary for sustainable development.

ICENS developed and obtain funding from the International Development Research Centre (IDRC) for a 24-month “Environmental Risks of Cadmium in Jamaica” aimed at achieving an optimal balance between the environment and human well-being of a selected population in central Jamaica with special reference to environmental cadmium. The project commenced in November 2004.

The proposed investigation will allow an understanding of the factors that influence the uptake of cadmium so that farming practices can be developed to reduce the risks due to high levels of the toxic element cadmium in the fertile soils of central Jamaica.

## 1.1 Planning Context

Eighteen (18) persons, representing the research organizations involved in the project participated in a two-day participatory Strategic Action Planning Workshop (SAPW) held at the Mona Visitor’s Lodge and Conference Center on February 28- March 1, 2005.

The objectives of the SAPW were to:

1. Review the current status of, and develop a shared vision for the project;
2. Develop a 20-month Strategic Action Plan; and
3. Develop an Implementation Calendar and agree on coordination and next-steps for the project.

The SAPW aimed to bring all the researchers together under one planning umbrella, in an attempt to ensure that the research is conducted in an integrated manner. It was designed to not only identify problems and clarify issues, but also to formulate realistic priority action plans for successful implementation. This *Strategic Action Planning Workshop Report* summarizes the participatory methodologies utilized in conducting the planning exercises and the subsequent actions emerging from the two-day activity.

Of special importance are the strategic directions and activities identified. These were:

- ✓ Health Influences of Cadmium and Dietary patterns and intake, and
- ✓ Environmental and agricultural influences and best management practices

Further feedback suggested alternate titles for the strategic directions:

- ✓ Cadmium intake and health conditions
- ✓ Environmental Cadmium and agricultural practices

These were appropriately modified in the final report.

A third strategic direction, 'Adaptation and Mitigation' was identified but was not discussed in major detail, as this direction follows from the outcomes of the two named above and will emerge towards the end of the project.

In addition to identifying the two major strategic directions, the workshop established priority actions, key activities, and stakeholder roles and responsibilities for each. A time schedule for the activities was also identified.

The implementation calendar helped to identify the gaps and overlapping areas of interest between the two strategic directions. The Researchers made commitments to fulfill their roles and responsibilities. A governance mechanism was also developed for the effective implementation of the project.

The formal opening of the ICENS/IDRC Strategic Action Planning Workshop commenced with a welcome by Dr. Van Taylor, of ICENS. He gave a brief overview for the workshop and handed over the proceedings to Trevor Spence, the lead facilitator. The Facilitator guided participants through introductions, and participants indicated a one-word, in alphabetic order that best describes their expectation of the workshop. Listed below is the outcome of that process:

**Table 1. Participants' expectations of the workshop**

<b>EXPECTATIONS</b>
<b>A</b> – ANTICIPATIVE
<b>B</b> – BEAUTIFUL
<b>C</b> – CHAOS
<b>D</b> – DECISIVE
<b>E</b> - EVER-READY
<b>F</b> - FACTS AND FIGURES
<b>G</b> - GROUP PLAN
<b>H</b> – HOLISTIC
<b>I</b> – INTENSE
<b>J</b> - JUST-IN-TIME
<b>K</b> – KNOWLEDGE
<b>L</b> – LIVELY
<b>M</b> – MUCH
<b>N</b> - NO DRIFTING
<b>O</b> – OPTIMISTIC
<b>P</b> – PRODUCTIVE
<b>Q</b> – QUESTIONS
<b>R</b> – ROUNDED
<b>S</b> – SPECIFIC

Dr. Robin Rattray of ICENS then gave an overview of the project, including the background and concept of the project. Dr. Ana Boischio of IDRC also made a presentation on the Eco-Health approach, as well as the IDRC's expectations of the project. Both presentations are included in this report as Appendix 5 and 6.

Following the presentations, the workshop discussed the overall project objective, as well as the eight specific objectives of the project, to ensure that they were understood.

### **Overall Project Objective**

The overall objective of the research project is to determine the optimal balance in the use of environmental resources to maintain human well-being, with special reference to community environmental cadmium exposure.

### **Specific Project Objectives**

An initial eight project objectives were identified, with one modification to O. 1 during the IDRC presentation, based on the official documents.

The specific objectives of the project are to:

1. Determine the elemental contents, especially of cadmium, chromium, copper, molybdenum, selenium and zinc in paired soil/food samples from the study area and the relationships between these; to determine Cd contents in human biomarkers among the exposed populations – from the farmers and consumers (added).
2. Determine the dietary patterns of the population within the target area and ascertain whether the dietary intake of cadmium exceeds thresholds for reported toxic effects, and may therefore represent a health risk to that population;
3. Examine whether there are apparent links between systemic diseases, especially prostate cancer and renal failure in the study population that can be related to exposure to Cd in the local environment;
4. Evaluate gender-related differences in susceptibility to Cd exposure;
5. Characterize the farming practices, including the constraints and opportunities that influence the adoption of these, and the socio economic status of the study population;
6. Explore options, including changes in land use and farming practices that will reduce the exposure of the population to cadmium and enhance the capacity of communities to deal with the problems of metal contamination in their farm produce;
7. Explore the use of food consumption advisories as a risk management strategy to minimized dietary exposure to cadmium and other toxic elements in the local population;
8. Identify social (organizational, gender, age factors); that may affect, either positively or negatively, such mitigation efforts as may be required; and

### **Clarification issues**

The participants asked the following questions and/or raised the following issues:

- i. Are actions to be included?
- ii. What is meant by optimal balance?
  - ✓ Is it to maximize benefits? Or
  - ✓ Is it to minimize harmful effects?
  - ✓ Balance of health, economics, environmental and social
- iii. Are critical levels for Jamaica similar to those for other countries, as identified in the overview presentation? Will the project identify if it should be different?
- iv. What are the indicators to be used?

- v. What are the guidelines? Is there a definition?
- vi. What are the biomarkers to be used?
- vii. What is the geographic area for the study sites?
- viii. What is the target population? Is it farmers and/or consumers?
- ix. Is there specificity in project sampling?

- ✓ Age
- ✓ Geographic area
- ✓ Sample size
- ✓ Gender

Some of these issues received further discussion and included:

1. The definition of farmer/farming – this must include yam, vegetables
2. The issue of sample size: ~ 50 persons for biomarkers?
3. STATIN needs to be involved as the project now needs to determine the population within the boundaries of the study area.
4. Will the food consumption study target one person per household, or all members in the household? Will it be the older or younger person or both?
5. Quality of data – it is vital to involve a statistician.
6. Will the surveys be random or deterministic by convenience? A random approach is more acceptable, as the researchers responsible for sample design is more knowledgeable of this type.
7. The project has to initiate a General Survey as an initial study guide.
8. What are the biomarkers to be utilized in the study?
  - a. Urine and/or blood
  - b. The issue of taking blood? Will it be mandatory or voluntary?
  - c. It was decided that urine would be the primary biomarker.
  - d. How would the subjects be approached? Could be linked through medical practitioners for targeted sampling.
9. Will the focus be on risk or also on health consequences? The objectives included health consequences (O. 3).
10. What specifically will urine be analyzed for? Must include low molecular weight protein.
11. The geographical study area includes household units within farming communities (inclusive of both producers and consumers). The parishes include Southern Trelawney, North Manchester, and Clarendon. The communities to be chosen must be based on ranges in Cd content in the soil as well as information on community population numbers from STATIN.
12. The cost and duration of project activities will determine the quality of data collected.

### **Issues directly related to the specific objectives**

Participants then discussed a number of issues, based on the specific objectives. These included:

**Objective 1:** What are the other elements, other than Cd, to be studied? These include chromium, copper, molybdenum, selenium, zinc, and iron. The levels in local foods are to be determined. This activity involves ICENS and CFNI.

**Objective 2:** What is the Cd threshold mentioned? This can be found readily in the literature.

**Objective 3:** The approach would have to be through medical histories.

**Objective 4:** The gender linkages would have to be made from a food consumption approach, with urine tests to determine exposure. It must be determined who makes the food decisions, as well as the age of the members of the household.

**Objective 5:** What are the farming practices to be determined? Fertilizer use and practices is also important in the determination of uptake of Cd by plants. The effect of water is also important.

**Objective 6:** This objective is closely linked with Objective #5. They inform each other. A previously developed questionnaire should be reviewed.

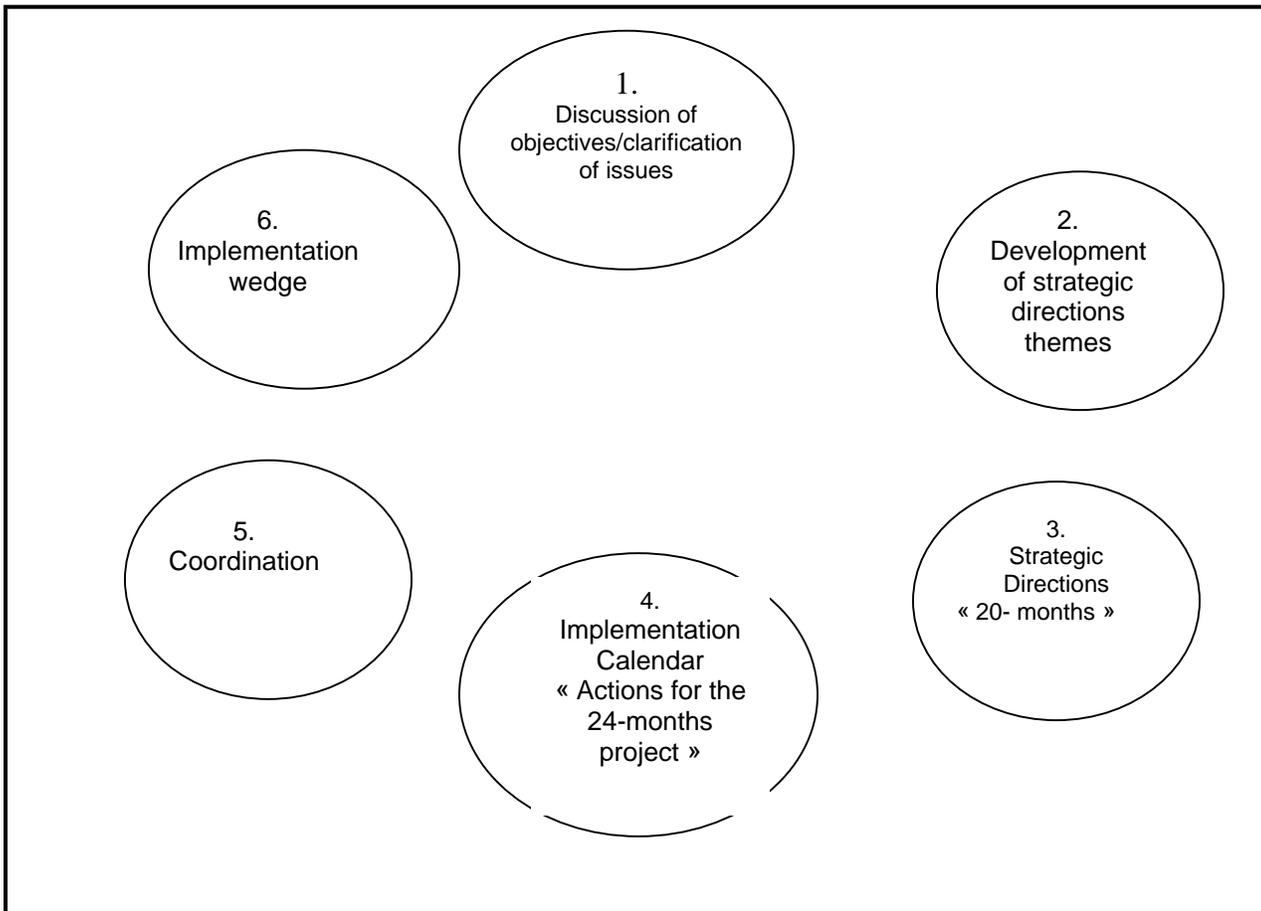
**Objectives 7-8:** These include options for mitigation and adaptation, and will follow all the previous work.

Mr. Trevor Spence then outlined the programme of activities that were scheduled for the two days. Combining various participatory exercises, participants would engage each other in a dialogue on the current issues and realities related to project implementation. Once a clear vision of the objectives and outcomes of the project is made, the participants would then identify strategies that would lead to the realization of the objectives, and the various priority actions that would operationalize these strategies. The flow of activities for the workshop is illustrated in Figure 1.

SAPWs are flexible and adaptive, and accommodates the views and perspectives offered by its participants. There were various modifications made to the agenda during the workshop by participants, in order to suit the aims of the planning process. Facilitators adjusted the Agenda as such.

It was also reiterated that the process was one of learning by doing, and that modifications were possible as part of an on-going exercise. The SAPW process is also a democratic one, and the workshop used consensus and voting options to make decisions throughout the workshop. The planning process described in Figure 1 is a modification of the Agenda (Appendix 1).

#### **Figure 1. ICENS/IDRC Planning Process**



Mr. Spence reiterated the three methodological pillars established as crosscutting themes. These are the three elements of the IDRC's eco-health approach projects.

**TRANS-DISCIPLINARITY** - Engagement and integration of various disciplines understanding the issues; Involvement of users, non-researchers, to bring in the complexity of choice-making and the nature of trade-offs; development of common tools that help understand and assess the social-ecological interactions and influences on health and well-being; identification of interventions that reflect this synthesis; testing of interventions within a mind set that is open and inclusive to inconvenient facts that may emerge.

**SOCIAL AND GENDER EQUITY**- A greater sensitivity in the research to the context and differences faced by the more marginal and disadvantaged individuals and groups; building/enhancing capacity of the groups to make more informed decisions for change

**MULTI-STAKEHOLDERS PARTICIPATION**- Who are the stakeholders? What are the issues of interest to various stakeholder groups? Which stakeholders can make a difference to the situation? How can communities be empowered to participate more effectively in multi-stakeholder processes.

The Facilitator also expressed the need to share with the participants some fundamental principles that would inform the manner in which inputs would be made throughout the various exercises. These principles are presented below.

### **Workshop Principles for Actions**

The principles as shared by the Facilitator for actions to be developed/already developed are for SMART actions, that is:

**S - SPECIFIC**  
**M - MEASURABLE**  
**A - ACHIEVABLE**  
**R - REALISTIC**  
**T - TIME-BOUND**

The workshop intended to focus planning, monitoring, and evaluation on targeted behaviors, actions, and relationships within the project's sphere of influence, as well as on learning how to increase a program's effectiveness in relation to its ultimate goals.

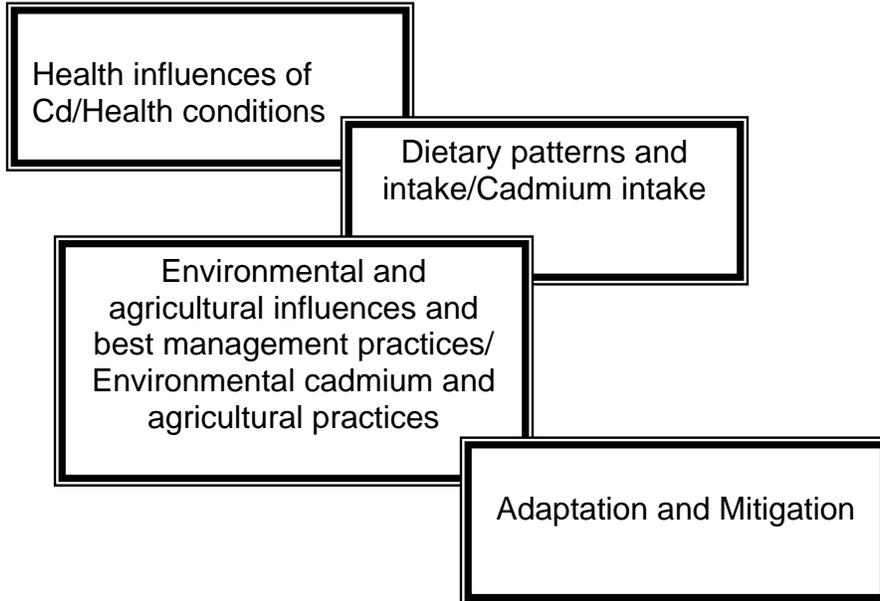
The process would be expected to achieve the following:

- ✓ Design and articulate the project's logic
- ✓ Record the internal and external monitoring data
- ✓ Indicate the current realities, including the positives as well as weak areas
- ✓ Determine intended and unexpected results
- ✓ Establish evaluation priorities and plans

## **Session One: Strategic Directions Workshop**

A review of the objectives of the project highlighted four major thematic areas as shown below.

**Thematic Areas**



These thematic areas were further collapsed into two working themes. Health influences, Cd, Dietary patterns, and intake were merged into one theme, while a decision was taken to forego planning for the “Adaptation and mitigation” theme, as it would automatically follow the others, and would come towards the end of the project. This therefore left two agreed themes, namely Health and Dietary Influences/Cadmium Intake and Health Conditions, and Environmental and Agricultural Influences, and Best Practices/Environmental Cadmium and Agricultural Practices.

Participants were then led through the Strategic Directions Workshop. This session engaged the participants in identifying the key activities that would allow them to proactively and jointly respond to the objectives of the project. These activities, they were reminded, must be realistic and achievable.

Participants were allowed to choose between the two thematic areas, the one they felt that was more applicable to them and their role in the project.

To focus the participants throughout the Strategic Directions Workshop, they were asked to keep in mind the question below.

**FOCUS QUESTION**

What are the Strategic Directions that ICENS need to take over the next twenty (20) months (by November 2006) to address the objectives of the research Project?

Each participant was asked to write down activities to be implemented in the next twenty months that would lead to the realization of the objectives of the project. Then, in the two planning teams, the participants were asked to consider and discuss their ideas as a group. For each objective, the planning teams were asked to write down all the possible activities using a worksheet (Worksheet 2). They were to determine the Strategies (What); Objective/s for each Strategy (Why); Lead Agency/Individual, and other Key Stakeholders responsible for implementing the strategy (How); and Start and Completion Time (When). Work teams were asked to present their strategic directions to the entire group.

The strategic directions would be used to inform the implementation calendar to be developed later in the workshop.

The following 4 pages illustrate the output from the strategic directions workshop.

## Strategic Directions Generated from Workshop Participants

Participants reviewed the objectives and grouped them into two Strategic Directions:

1. Health Influences of Cadmium/Dietary Patterns and Intake/ Cadmium Intake and Health Conditions, and
2. Environmental and Agricultural Influences and Best Management Practices/ Environmental Cadmium and agricultural practices

The objectives were then clustered and reviewed under these two Strategic Directions, with Actions, Lead and Support Agency/Agencies, as well as estimated start and completion dates identified. They are presented in Tables 2-4 below:

**Table 2. Strategic Direction 1: Health Influences of Cd/Dietary Patterns and Intake/Cadmium Intake and Health Conditions**

<b>Strategic Direction 1 – Health Influences of Cadmium/Dietary Patterns and Intake/ Cadmium Intake and Health Conditions</b>					
<b>OBJECTIVE</b>	<b>ACTIVITY</b>	<b>LEAD</b>	<b>SUPPORT</b>	<b>START TIME</b>	<b>END-TIME</b>
<b>Objective 1:</b> Determine the elemental contents, especially of cadmium, chromium, copper, molybdenum, selenium and zinc in paired soil/food samples from the study area and the relationships between these.	1. Determine sampling areas and design	Project Researcher, CARDI	ICENS, UFMT, RADA, RPPD	March '05	April '05
	2. Foods to be sampled	CFNI	ICENS	March '05	April '05
	3. Sample collection of raw foods and soil from farms	ICENS	MoA, RPPD, GSC	April '05	March '06
	4. Sample preparation, analysis and reporting	ICENS		April '05	July '06
<b>Objective 2:</b> Determine the dietary patterns of the population within the target area and ascertain whether the dietary intake of cadmium exceeds thresholds for reported toxic effects, and may therefore represent a health risk to that population.	1. Determine sampling areas and design	Project Researcher, CARDI	ICENS, UFMT, SWU	March '05	April '05
	2. Instrument development, pilot testing and data analysis plan	CFNI, UFMT	ICENS, NW, BAB	March '05	July '05
	3. Selection and training of data collectors	CFNI, UFMT	ICENS, NW, BAB, UFMT	June '05	July '05
	4. Data Collection	CFNI, UFMT		July '05	Sept '05
	5. Data cleaning, entry and analysis	CFNI, UFMT		July '05	Feb. '06
	6. Chemical analysis of a selection of cooked foods and raw ingredients	ICENS	CFNI	March '05	July '05
	7. Reporting	CFNI, UFMT	ICENS	Feb '06	May '06
<b>Team Members: Nadia, Mitko, Paul, Robin, Bev, Pauline, and Blossom, Edna</b>					

**Table 2. Health Influences of Cd/Dietary Patterns and Intake/ Cadmium Intake and Health Conditions (contd.)**

<b>Strategic Direction 1 – Health Influences of Cadmium/Dietary Patterns and Intake/ Cadmium intake and health conditions (continued)</b>					
<b>OBJECTIVE</b>	<b>ACTIVITY</b>	<b>LEAD</b>	<b>SUPPORT</b>	<b>START TIME</b>	<b>END-TIME</b>
<b>Objective 3:</b> Examine whether there are apparent links between systemic diseases, especially prostate cancer and renal failure in the study population that can be related to exposure to Cd in the local environment.	1. Determine sampling areas and design	Project Researcher, CARDI	ICENS, UFMT	March '05	May '05
	2. Instrument development, pilot testing	BAB, Medical, UFMT	Project Researcher, CFNI	May '05	July '05
	3. Training of data collectors for interviews (height, weight and blood pressure)	BAB, UFMT	ICENS, NW, CFNI, UMFT	May '05	July '05
	4. Data Collection	BAB, UFMT	CFNI, NW, ICENS	July '05	Sept '05
	5. Data entry and analysis	BAB, UFMT	CFNI, NW, ICENS	Aug '05	Feb. '06
<b>Objective 4:</b> Evaluate gender-related differences in susceptibility to Cd exposure.	Crosscutting across all objectives Will be brought out in analysis and data interpretation.	SWU	Project Researcher		
<b>Objective 1b:</b> To determine Cd content in human biomarkers among the exposed population	1. Obtain ethical approval	ICENS	Medical	March '05	June '05
	2. Sampling design	CARDI	UFMT	March '05	May '05
	3. Training of data collectors	BAB, EVERARD (Medical)	NW	June '05	July '05
	4. Urine Sample Collection	BAB	ICENS	July '05	Sept '05
	5. Sample analysis, data entry analysis and interpretation	ICENS	BAB, NW, UFMT	July '05	Feb. '06
<b>Team Members: Nadia, Mitko, Paul, Robin, Bev, Pauline, and Blossom, Edna</b>					

**Table 3. Strategic Direction 2: Environmental & Agricultural Influences and Best Management Practices/ Environmental Cadmium and Agricultural Practices**

<b>Strategic Direction 2 – Environmental and Agricultural Influences and Best Management Practices/Environmental Cadmium and agricultural practices</b>					
<b>OBJECTIVE</b>	<b>ACTIVITY</b>	<b>LEAD</b>	<b>SUPPORT</b>	<b>START TIME</b>	<b>END-TIME</b>
<b>Objective 1:</b> Determine the elemental contents, especially of cadmium, chromium, copper, molybdenum, selenium and zinc in paired soil/food samples from the study area and the relationships between these.	1. Sampling	ICENS	RADA	Jan '05	Dec '05
	2. Analysis	ICENS	GSC	Jan '05	March '05
<b>Objective 5:</b> Characterize the farming practices, including the constraints and opportunities that influence the adoption of these, and the socio economic status of the study population.	1. Development and pre-testing of questionnaires	RADA	ICENS, SWU, UWI	March '05	March '05
	2. Administering of questionnaires	RADA	ICENS	July '05	Sept. '05
	3. Compilation of data	ICENS		1 month	1 month
	4. Analysis and Interpretation	CARDI	ICENS	July '05	Oct. '05
<b>Objectives 6-8:</b> 6. Explore options, including changes in land use and farming practices that will reduce the exposure of the population to cadmium and enhance the capacity of communities to deal with the problems of metal contamination in their farm produce; 7. Explore the use of food consumption advisories as a risk management strategy to minimized dietary exposure to cadmium and other toxic elements in the local population; 8. Identify social (organizational, gender, age) factors that may affect, either positively or negatively, such mitigation efforts as may be required.	1. Exploration of options to decrease exposure	MoA, RADA, ICENS		Not determined	Not determined
	2. Suggest alternate crops in areas of high Cd uptake.	ICENS, RADA		July '05	Sept. '05
	3. Workshop for researchers	ICENS	IDRC	Feb '06	March '06
	4. Community workshops	ICENS	IDRC	Feb '06	March '06
<b>Team Members : Albert, Leslie, Charles, John, Van, Maxine, Horace</b>					

From the table discussions on the strategic directions, participants summarized the top key pieces of information already readily available to the project, as well as the top three sub-issues and the top stakeholders with responsibilities. These were done using Worksheet 1 (Appendix 2).

The information from this discussion was used to confirm the information presented in the Strategic Directions Workshop. Table 4 presents a summary of the lead and support researchers for the various objectives of the project.

**Table 4. Summary of responsibilities for project objectives**

Objective	Lead	Support
1	CFNI; ICENS; CARDI	MoA; RADA; RPPD, UFMT; GSC
2	CFNI; ICENS; UFMT	Medical, MoH
3	Medical, UFMT	CFNI; ICENS; MoH
4	SWU	Project Researcher/ICENS; All
5	RADA; ICENS; CARDI	SWU
6+7+8	MoA; RADA; ICENS	All
9	ICENS; CARDI; Medical	UFMT; ICENS; MoH

### **The Implementation Matrix of activities**

Table 6 shows the implementation matrix developed from the workshop. Participants were asked to identify specific actions to be undertaken during the 20-month project duration. These actions were placed in the calendar of activities, under 8 quarters. Discussions ensued to solidify the actions and to ensure that they are coordinated and appropriately aligned.

Participants used this exercise to integrate the two strategic areas, especially as it relates to timing of interventions and progression of activities.

Table 5 presents the issues that were identified during the Implementation Calendar of Activities workshop.

**Table 5. Major issues emerging from workshop discussions**

Issue	Description	Status
Project should offer farming practices alternatives if critical levels of metals are observed	<ul style="list-style-type: none"> <li>✓ Crop replacement if necessary</li> <li>✓ Increased farmer knowledge</li> </ul>	To be done
Data collection must be synergized		To be done by Sampling and survey Task Force
Full time employee to integrate components		Paul has been identified as Project Researcher, TOR available
Draft sampling design to be circulated to all researchers		To be carried out by S&S Task Force
Selection of software for data analysis (to deal with various types of data)	Must be able to code common data appropriately	Project researcher to identify along with CARDI
Information dissemination	Researchers and communities	To be carried out by community meetings (3) and researcher workshops
Identify lead responsibilities for Brazilian and Canadian partners	Need to balance the lead responsibilities between Jamaica and the Brazilian and Canadian counterparts.	UFMT identified. Canada to receive draft plan for comments
Sampling design	# of samples; # & names of communities; # of sampling times; who to administer; # of surveys; for urine samples – whose urine (age, gender etc.)	To be determined by S&S Task Force
Sampling design	6 communities; 18000 pop.( 10% to be surveyed = 1800); 350 households; 1-2 persons per household	Undecided, PR to coordinate
Ensure gender issues captured by survey instruments		Input from SWU
Follow-up workshops	Feb-March '06	3 days for researchers 1 day for communities
Objective 8 should be changed from identify to explore		Accepted
STATIN and SRC will act as resource bodies		To be initiated by PR
Community sensitization meetings to be carried out in Quarters 2/3; 6 and 8		
Equipment procurement	Researchers provide list to PR for procurement	
Masters in Public Health students to do data collection for Objective 3.	Indicators to be used include body weight, height, blood pressure	
Interim Project Reporting		PR to coordinate

# ICENS/IDRC Research Project

## Environmental Risks of Cadmium in Jamaica

**Table 6. Implementation Matrix for ICENS/IDRC Project**

WORK ARENA/ TEAM MEMBERS	OBJECTIVE	INITIAL ACTIVITY	Q. 1 Nov. '04 – Jan '05	Q. 2 Feb. – April '05	Q. 3 May -July '05	Q. 4 Aug-Oct '05	Q. 5 Nov.'05-Jan'06	Q. 6 Feb – April '06	Q. 7 May- July '06	Q. 8 Aug – Nov. '06	OUTPUT		
<b>Health influences of Cd/Dietary Patterns and Intake/ Cadmium Intake and Health Conditions</b>  Nadia Mitko Paul Robin Bev Pauline Blossom Edna	1	Determine Sample area and design	Identify foods to be sampled									Sample designed, foods identified	
			Sample collection (food/soil)										Raw foods and soils collected
			Sample analysis Data reporting										Raw food, soils analysed and report prepared
	2		Instrument Development										
			Analysis Plan										
			Pilot Testing										
			Selection of interviewers & Training										
			Procure equipment										
			Community Sensitization										
			Administer Questionnaire										
			Data Collection										
	Chemical analysis of cooked foods			Data cleaning and entry									
				Data analysis and interpretation			Report Preparation				Report on food & nutrient intake, frequency of food consumption, Cd intakes, BMI, composition of selected foods. Relationship between biomarkers and Cd intake and disease information		
	3		Instrument Development & pilot testing		Community Sensitization								Validated questionnaires
			Procure equipment										
			Selection of interviewers		Administer Questionnaire								



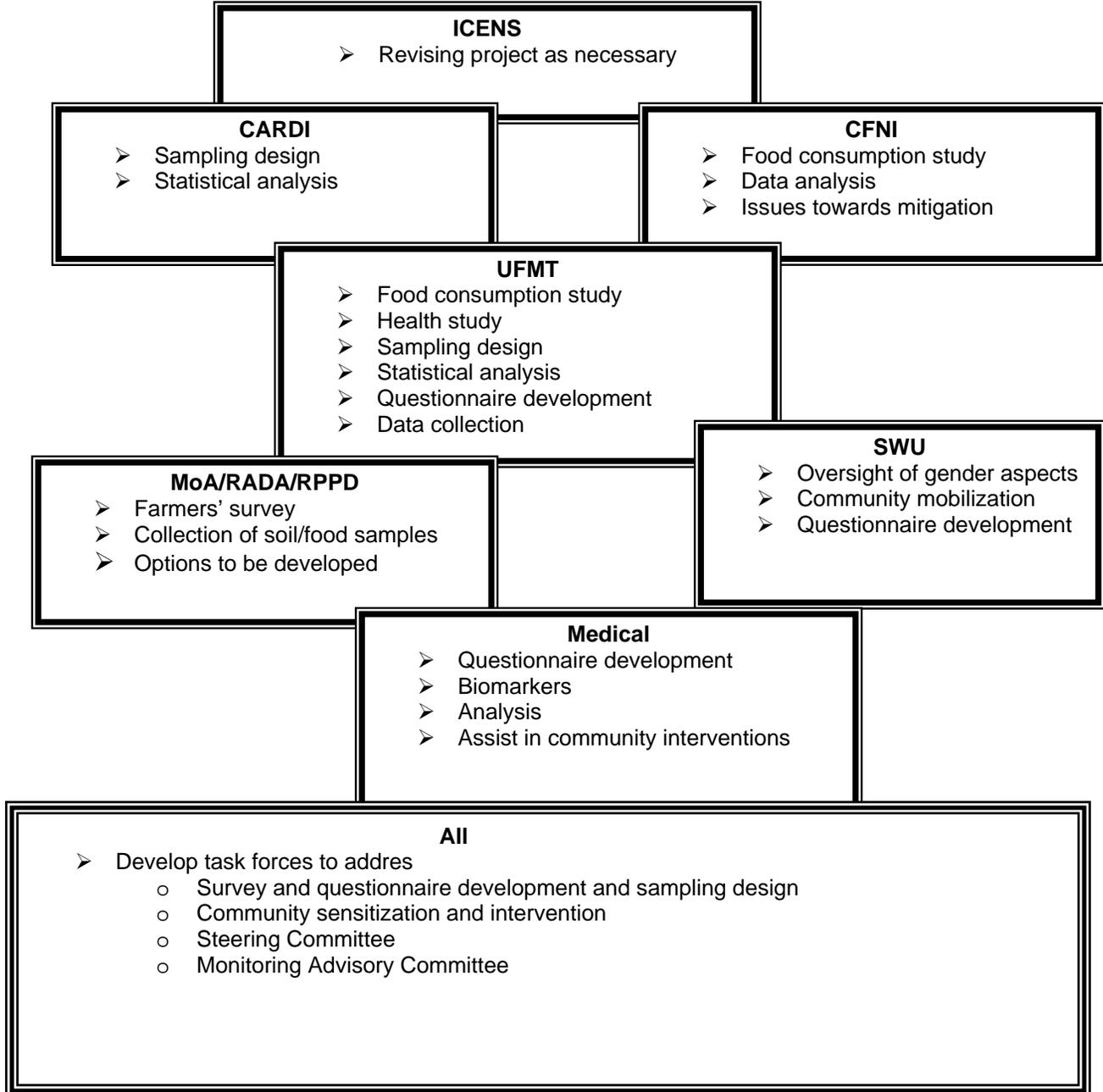
WORK ARENA/ TEAM MEMBERS	OBJECTIVE	INITIAL ACTIVITY	Q. 1 Nov. '04 – Jan'05	Q. 2 Feb. – April '05	Q. 3 May -July '05	Q. 4 Aug-Oct'05	Q. 5 Nov.'05-Jan'06	Q. 6 Feb – April '06	Q. 7 May- July '06	Q. 8 Aug – Nov. '06	OUTPUT	
ENVIRONMENTAL AND AGRICULTURAL INFLUENCES AND BEST MANAGEMENT PRACTICES/ ENVIRONMENTAL CADMIUM AND BEST PRACTICES  Albert Leslie Charles John Van Maxine Horace	1	Determine Sample area and design		Sampling of soil/food pairs								Soil/food element data
	2											
	3											
	4											
	5			Questionnaire development	Administer questionnaire							
					Compilation of questionnaire data		Analysis of farming survey data					Farming survey database; Info. On farming practices & socio-economic status and crop types ;
	6									Explore options to offer alternatives to reduce exposure to Cd		Alternatives, changes in farming practices ; proposal for further research to develop appropriate farming and land use practices
	7											
	8											
9												



## Commitment

Participants then made commitments on various tasks evident from the discussions and the project document. These are presented in Figure 2.

**Figure 2. Commitments made by researchers at SAPW**



## **Governance Mechanisms**

The participants identified the need for various committees and task forces, to effectively implement the project. These committees were identified with the need to provide general oversight, make technical decisions and guide implementation actions. The following committees and task forces were recommended:

### **Monitoring Advisory Committee Monitoring and Policy**

**Members include :**

- Principal Investigator – Prof. G. Lalor
- IDRC Representative – Dr. Ana Boischio
- Brazilian counterpart – Dr. Edna Yokoo
- Canadian counterpart – Dr. Bob Garret
- Community representative to be named

### **Steering Committee Implementation**

**Members include :**

1. Principal Investigator – Prof. G. Lalor
2. Project Researcher –Paul
3. John
4. Mitko
5. Pauline
6. Blossom
7. Everard
8. Horace
9. Wesley Watts (RPPD)
10. CARDI representative to be named

### **Sampling and Survey Task Force (S&S)**

- To be lead by Paul

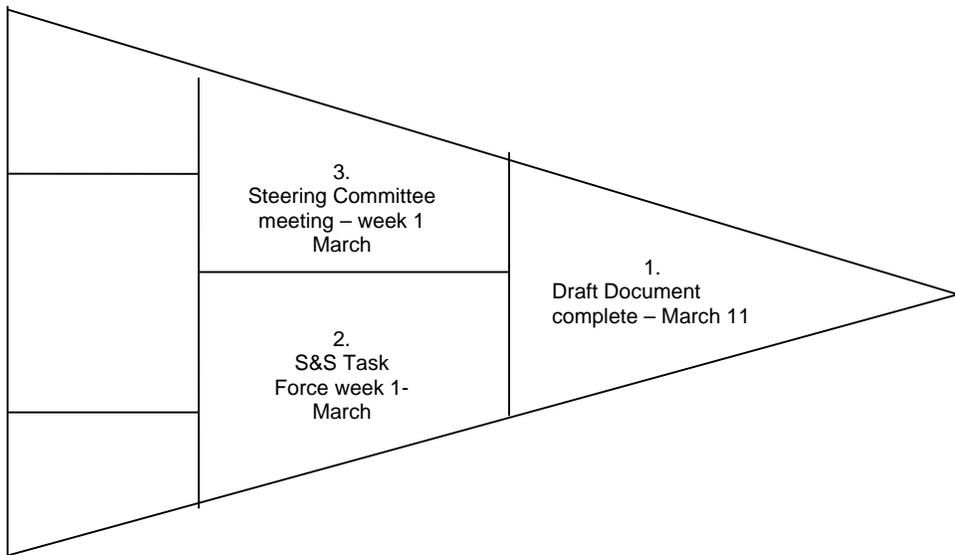
### **Community Intervention Task Force**

- To be lead by SWU (Horace)

### Implementation wedge

Participants identified the *immediate* next steps, and developed an implementation wedge (for the next two weeks) which will provide the bridge for smooth implementation of the current twenty-month action plan. Those actions are listed in the wedge below:

**Figure 3. Implementation wedge for next step actions**



### Next Steps

The following represents some of the key areas for development in the immediate future of the project.

- S&S Task Force to do sample design
- Development of ToRs for trainers
- Software for data analysis to be selected
- Plan for community sensitization to be developed
- The formerly planned Day 3 of the workshop to be rescheduled for a new date, once the final draft of the Plan is complete.
- Draft Plan to be circulated to researchers for comments and final input
- Draft Plan to be sent to Bob at GSC for his input
- Equipment procurement to commence

## Summary and Closing

Mr. Spence summed up the two-day workshop proceedings. He handed the chair over to the IDRC representative who conducted a short, verbal evaluation of the workshop. She turned over to Van, who in turn asked participants to share their views on the workshop.

The following terms represent the views of the participants:

### Figure 4. Participants' evaluation of the workshop

- A plan was developed, with critical linkages identified.
- Commitment were made by researchers to making the research effective
- The process identified areas of responsibility for stakeholder researchers and made their prospective contributions clear.
- The workshop conducted showed the bigger picture of the project.
- It Identified deadlines, clarified objectives and proposed means of achieving the results with group consensus.
- The workshop placed the project in a collaborative, truly transdisciplinary light, and if plans are accomplished the study will be a good example of this.
- Protocol was established, with working groups developed to carry out the research in a strategic manner.
- A clear method of communication was also established, with the proper avenues identified.

On behalf of ICENS, Van thanked all participants and the facilitators for their contribution to a successful planning workshop.

A tour of the study area was arranged for the following day, in lieu of Day 3 workshop.

## **APPENDICES**

## Appendix 1

### **ICENS/IDRC STRATEGIC PLANNING WORKSHOP** **Research Project on Eco-Health Consequences of Heavy Metals in Jamaica** **Mona Common Room and Lodge Conference Centre, Mona, Jamaica** **February 28 – March 1, 2005**

#### **PURPOSE:**

1. To review the current status of, and develop a vision for the project
2. To develop a 24-month Strategic Action Plan
3. To develop an Implementation Calendar and agree on coordination and next-steps for the project

#### **AGENDA**

##### **Day 1 - Monday, February 28, 2005.**

- 8:30 – 9:00 a.m.** - Registration
- 9:00 - 9:30 a.m.-** **Welcome, Prayer, Introduction, Expectations**
- 9:30 – 10:15 a.m.** - **Presentations and Project Orientation**  
✓ Overview of Project -ICENS  
✓ Presentation by IDRC  
✓ Summary of Draft Action Plan
- 10:15 – 10:45 a.m.** - **Discussions**
- 10:45 – 11:00 a.m.** - **COFFEE BREAK**
- 11:00 – 12:30 p.m.** - **Current Reality Workshop**
- 12:30 – 1:30 p.m.** - **LUNCH**
- 1:30 – 2:30 p.m.** - **Developing a Shared Practical Vision**
- 2:30 – 4:00 p.m.** - **Strategic Direction**

##### **Day 2 - Tuesday, March 1, 2005.**

- 9:00 – 9:30 a.m.** - **Review**
- 9:30 – 10:45 a.m.** - **Strategic Action Plan & Plenary Session**
- 10:45 – 11:00 a.m.** - **COFFEE BREAK**
- 11:00 – 12:30 p.m.** - **Implementation, calendar of activities**
- 10:45 – 12:30 p.m.** - **Implementation, calendar of activities**
- 12:30 – 1:30 p.m.** - **LUNCH**
- 1:30 – 2:00 p.m.** - **Coordination**
- 2:00 – 2:30 p.m.** - **Implementation wedge**
- 2:30 – 3:00 p.m.** - **Summary & Closing**

**Appendix 2**  
**WORK SHEET 1**

**FEEDBACK ON ISSUES**

1. What are the three (3) most important pieces of information available on the study site that would influence the implementation of your thematic area?

- i. ....  
.....
- ii. ....  
.....
- iii. ....  
.....

2. Name the three (3) key sub-issues that must be addressed in your selected area in order for ICEN to effectively implement this project

- i. ....  
.....
- ii. ....  
.....
- iii. ....  
.....

3. Name the three (3) key Organizations and their likely role in partnering ICEN in the successful implementation of this project

- i. ....  
.....
- ii. ....  
.....
- iii. ....  
.....

4. List any other comments you have

**Appendix 3**  
**WORKSHEET 2A – Health influences of Cd/Dietary Patterns and Intake/ Cadmium Intake and Health Conditions**

<b>Strategy:</b>				
<b>Objective</b>				
Activity:	Lead Responsibility	Support Responsibility	Estimated Start Time	Estimated Completion Time
<b><u>Team Members:</u></b>				

**WORKSHEET 2B – ENVIRONMENTAL AND AGRICULTURAL INFLUENCES  
AND BEST MANAGEMENT PRACTICES/ ENVIRONMENTAL CADMIUM AND  
AGRICULTURAL PRACTICES**

<b>Strategy:</b>				
<b>Objectives</b>				
<b>Activity:</b>	<b>Lead Responsibility</b>	<b>Support Responsibility</b>	<b>Estimated Start Time</b>	<b>Estimated Completion Time</b>
<b><u>Team Members:</u></b>				

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