



**INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)**

UNESCO IOC Sub-commission for the Caribbean and Adjacent Regions (IOCARIBE)

Proposal

The Caribbean Large Marine Ecosystem (CLME) is a GEF sponsored project developed by IOCARIBE of IOC(UNESCO) Members States in their quest for new approaches to cope with managing their transboundary marine resources.

The CLME project will be assisted by the Intergovernmental Oceanographic Commission- IOC of UNESCO in the development of the Information Management System (IMS) and the Regional Environmental Programme (REMP) framework.

This document contains the proposal for the Design and Development of the Information Management System (IMS) and the Regional Environmental Programme (REMP) framework for the CLME Project.

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1. BACKGROUND

The CLME project will be assisted by the Intergovernmental Oceanographic Commission-IOC of UNESCO in the development of the **Information Management System (IMS)** and the **Regional Environmental Programme (REMP)** framework.

The Caribbean Large Marine Ecosystem (CLME) is a GEF sponsored project developed by IOCARIBE of IOC(UNESCO) Members States in their quest for new approaches to cope with managing their transboundary marine resources.

It is recognized that there has already been a good number of research and science initiatives addressing goods and services provided by the resources of the Wider Caribbean. Much of the pertinent information is centralized in a few areas or is in a form that makes it difficult to access. The Caribbean countries recognize that the living marine resource management problems can only be effectively addressed through adoption of EBM approaches and application of the FAO Code of Conduct for Responsible Fisheries. This will require a thorough baseline assessment of the system components and changes they are undergoing. The project will achieve this aim by following the standard LME modular assessment approach and the development of an agreed decision and planning framework by applying the GEF TDA/SAP process.

To assist this process, in parallel to the TDA, an **Information Management System (IMS)** will be designed and developed. It is envisaged that the design and development of a CLME IMS will initially concentrate on existing initiatives, and on data and information generated from the five priority transboundary fisheries and the **Regional Monitoring & Environmental Framework (REMP)**.

A review of existing monitoring programmes will be undertaken in order to identify a suite of ecosystem status indicators (ESI) which can adequately describe the status and track trends of the CLME environment while still being cost effective and technically feasible. The suite of ESI, in the form of an integrated Regional Ecosystem Monitoring Programme (REMP), will track the status and long-term trends in CLME fisheries, biodiversity habitat degradation and pollution.

Recognising that a complete and sustainable REMP to track the ecological integrity and sustainability of marine resources in the Wider Caribbean will require years to build, it is recommended that a plan for gradual development should be examined that focuses on the critical transboundary issues. REMP development will be phased to match the institutional capacity and the levels of funding available in the region. The REMP should be capable of producing consistent, comparable results and support the decision making process at the national, sub-regional and regional levels. The preliminary programme will inevitably be modest, focusing on priority transboundary pollutants and key ecosystems and fisheries under threat. The design of the REMP programme will be underwritten by the analysis and gap filling activities done under the TDA and the results from the demonstration projects. An integral part of the REMP design will be a regional awareness and capacity building programme, targeting participating monitoring and advisory bodies.

The project needs to ensure that this system will be sustainable over the long term. One of the purposes of the information system will be to facilitate the accessibility and dissemination of this widely scattered information, as well as to analyze the information and data produced for monitoring and evaluation of the ecosystem status of the CLME and implementation of the SAP. The design of the system will take account of regional and sub-regional objectives and will be discussed with and agreed by the participating countries.

There has been considerable effort in the wider Caribbean region to assess and address the problems of major fisheries and ecosystems by organizations at different jurisdictional levels and at different stages in the policy cycle.

Lack of monitoring, control and surveillance (MCS) is a common problem amongst the countries in the region, resulting in increased fishing effort and large-scale IUU fishing. The large-scale illegal sized lobster catch, which can contribute between 25-50% of the total catch in some countries, are not reported to the national fisheries agencies and can lead to significant bias in estimates of the biomass and the age structure of the stocks.

The PDF-B phase developed preliminary TDAs with a geographic focus and after extensive technical discussions; the members of the TDA Technical Task Team (TTT) and the Stakeholder Advisory Group (STAG) determined that: a) the best way to proceed for updating the TDA was on a fishery ecosystem basis consistent with the overall goals of the project; and b) three specific ecosystems (continental shelf, pelagic and reef ecosystems) were agreed as the focus of the revised TDA. This is a highly innovative and pioneering approach that will position the project as a front line initiative, as it sets a basis for advancing towards effective Ecosystem-Based Management (EBM) approaches. Moreover this will support a more targeted and relevant decision making process and ensure that the actions identified for the Strategic Action Program (SAP) will address the identified transboundary and shared issues in the most cost-effective manner.

The preliminary sub-regional TDAs will now be reviewed and reformulated into TDAs with a fishery ecosystem focus, which will include a full analysis of data and information gaps, a complete causal chain analysis, institutional mapping, a legislative review, a socio-economic review and definition of recommended interventions for inclusion in the SAP. The respective CCAs were preliminarily drafted during the TDA-SAP workshop, and these will now need to be reviewed and the CCA statements validated and prioritized using the GIWA methodology. The results of the TDA gap filling activities and the demonstration projects will be incorporated into a final updated TDA.

Pilot projects on specific transboundary fisheries (spiny lobster and reef fisheries) will trial governance models at the local, national and sub-regional levels and provide additional knowledge on means of applying ecosystem based approaches to fisheries management and determining the fisheries' socio-economic importance.

The main thrust of the system is recognized as being oriented towards getting useful significant indicators of the state of the marine ecosystem, its goods and services and its governance processes before senior decision makers in regional IGOs.

The long-term regional mechanism envisaged as being needed to deliver the information described is seen as consisting of a network of data and information gatherers and analyzers that would provide access to their data and information through a central portal where adequate metadata would be located. Within that framework a coordinator for the network and the platform that would serve as a means of access to information is needed.

The IOC of UNESCO is undertaking this role for the duration of the Project with the explicit aim that an agency, or group of agencies, would be found to take on the long-term coordination role

Even if significant steps in data and information sharing were achieved in the Region, especially by IOC of UNESCO, obtaining agreement from various agencies to provide their information is a long term challenge that would require considerable cultivation and effort at building a network. Among the important factors to reach data and information sharing agreements are the establishment of a demand for the information and its usefulness not just to decision-makers but also to other users throughout the region, including providers.

One of the roles of the regional governance component is to put marine resource issues on the agendas of regional intergovernmental organisations and to work with them to determine what information they would require in an IMS and a REMP to support their decision-making. Thus there would have to be close liaison between the Regional Governance and the Monitoring and Evaluation (M&E) Framework components.

During this first phase of the CLME project, much of the information that would be included in the initial efforts at developing indicators and reporting on them would be from pre-existing sources, and that there would be many gaps. Nonetheless, it is important to use this phase to build the M&E framework and to operationalise selected parts of it.

PROPOSED KEY ACTIVITIES

2. INFORMATION MANAGEMENT SYSTEM (IMS) DESIGN AND DEVELOPMENT

- a. Identify the appropriate data and information system for the CLME IMS.
- b. Identify sources of information and create a regional meta-database required to support an ecosystem approach to fisheries (EAF/ EBM) in the Wider Caribbean Region (e.g. fisheries, environmental, biological, pollution and socio-economic data and information);
- c. Include the outputs of the pilot and case study activities.
- d. Develop an operational user-friendly platform for the gathering/delivery of GIS data and other relevant information.
- e. Identify and analysis of potential CLME IMS users and development of a training programme on IMS importance, use and accessibility.
- f. Develop draft agreements on information and data exchange with identified CLME partner organizations;
- g. Describe the IMS system development and testing protocol.

3. REGIONAL ECOSYSTEM MONITORING FRAMEWORK (REMP)

- a. Conduct a review of existing relevant regional monitoring programmes in the wider Caribbean region;
- b. Analyse relevant information that should be integral part of the REMP.

- c. Interact with the Governance Component to identify a pilot set of relevant Ecosystem Status Indicators (ESI) in collaboration with data and information partners.
- d. Identify an appropriate approach to develop a mechanism to monitor the status and long-term trends for the CLME;
- e. Implement the REMP in pilot mode;
- f. Conduct an assessment in collaboration with the Governance Component to identify and ensure that a representative regional intergovernmental organization –IGOs (e.g. OSPESCA, FAO, ACS, etc.) could become an appropriate agency/institution to uptake the long-term coordination role for the REMP after the end of CLME project.
- g. Identify the most appropriate approach to develop an easy accessible system to support decision making processes at the sub-regional and regional level.

4. EXPECTED OUTPUTS

The following outputs will be provided:

4.1 INFORMATION MANAGEMENT SYSTEM (IMS) DESIGN AND DEVELOPMENT

- A baseline report on sources of information and a regional meta-database on fisheries, environmental, biological, pollution and socio-economic data and information;
- A meta-data description of the data and information to be included in the CLME IMS. This will include the results (data and information) produced by the pilot projects (lobster and reef fish) and case studies (flyingfish, large pelagics, shrimp and groundfish and governance framework);
- A comprehensive report on future relevant information that should be integral part of the REMP and M & E framework.
- System development and testing protocol.
- An operational data and information system, including an operational user-friendly platform for the gathering/delivery of GIS data and other relevant information.
- Assessment of potential CLME IMS users and development of a training programme on IMS importance, use and accessibility.
- Guidelines on information and data sharing with CLME partner organizations;
- Develop draft agreements on information and data exchange with identified CLME partner organizations.

4.2 REGIONAL ECOSYSTEM MONITORING FRAMEWORK (REMP)

- A clear linkage between the REMP and the IMS in identification, reporting, analysis and evaluation of available data.
- Comprehensive review of existing relevant regional monitoring programmes in the wider Caribbean region;

- A pilot set of Ecosystem Status Indicators (ESI) (e.g. process, stress reduction and ecosystem status indicators) of the state of the marine ecosystem, its goods and services and its governance processes to support senior decision making;
- Identification of a policy cycle-based mechanism to monitor the status and long-term trends for the full range of topics encompassed by the CLME;
- Plan for gradual development and/or implementation of the REMP (e.g. to carry the implementation process through at least a complete cycle in the time frame of the first phase of the Full Project);
- Identify potential intergovernmental organizations –IGOs as appropriate agency/institution to uptake the long-term coordination role for the REMP after the CLME project is over.
- Comprehensive description on reporting responsibilities at local, national, sub-regional and regional levels
- A prototype Regional Ecosystem Monitoring Programme (REMP)
- A “CLME Ecosystem Outlook” report using the available indicators found in the baseline. This outlook should be suitable to be compared with the selected indicators agreed at a later stage of the CLME project.

5 MANAGEMENT STRUCTURE

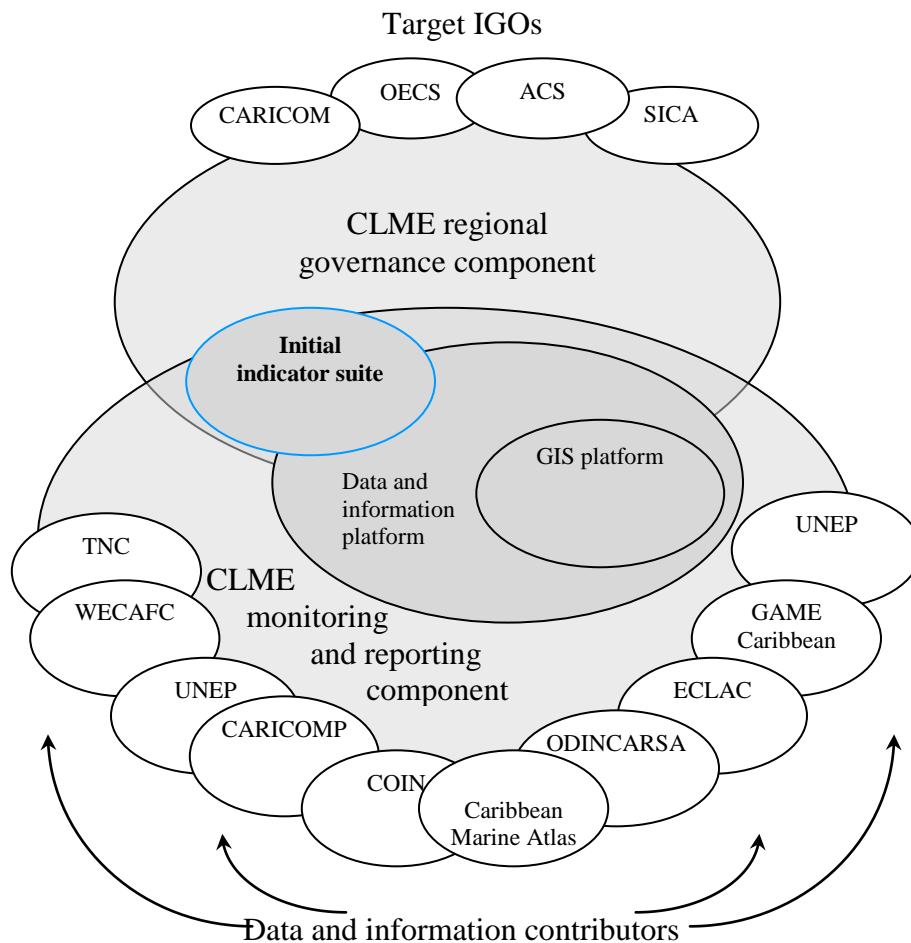
IOC of UNESCO will hire a coordinator and establish a coordinating technical task team comprising key partners, representatives from policy and planning agencies, agencies that can provide information including Member States leading the development of the Caribbean Marine Atlas (CMA), Barbados Coastal Zone Management Unit, CARICOMP, CERMES, Census of Marine Life, CRFM, ODINCARSA, OSPESCA, TNC, ECLAC, FAO, and UNEP.

6 APPROACH TO THE WORK

The proposed approach to the work and the cost by component is shown in Table 1.

A diagrammatic representation of the Monitoring and Evaluation (M&E) Framework is shown in the figure below. The key components of the system are:

- A network of agencies that are willing to provide information
- A platform that allows access to this information
- A mechanism for maintaining and engaging the network and the platform,
- A mechanism for coordinating the preparation of the agreed indicators for the IGOs
- A means of delivering those indicators to the IGOs and obtaining feedback – namely the CLME regional governance component.



SCHEDULE

- a. A progress report on IMS and REMP framework design and development will be prepared and provided to the PCU by 31 August 2011.
- b. A comprehensive draft version of the on IMS and REMP framework design and development will be presented at the 3rd STAG and SAP FT meetings.
- c. Comments and suggestions from the STAG and SAP FT meetings will be incorporated and shared with the PCU.
- d. System development and testing protocol, August 2011-July 2012
- e. Assessment of potential CLME IMS users and development of a training programme on IMS importance, use and accessibility, August-October 2011
- f. Guidelines on information and data sharing with CLME partner organizations, October 2011
- g. A pilot set of Ecosystem Status Indicators (ESI) (e.g. process, stress reduction and ecosystem status indicators) of the state of the marine ecosystem, its goods and services and its governance processes to support senior decision making, considering the inputs from the pilots; December 2011
- h. Identification of a policy cycle-based mechanism to monitor the status and long-term trends for the full range of topics encompassed by the CLME; December 2011
- i. Plan for gradual development and/or implementation of the REMP (e.g. to carry the implementation process through at least a complete cycle in the time frame of the first phase of the Full Project); December 2011
- j. Identify potential intergovernmental organizations –IGOs as appropriate agency/institution to uptake the long-term coordination role for the REMP after the CLME project is over.
- k. Comprehensive description on reporting responsibilities at local, national, sub-regional and regional levels
- l. An operational data and information system, July 2012
- m. A prototype Regional Ecosystem Monitoring Programme (REMP) July 2012
- n. A prototype “CLME Ecosystem Outlook” report using the available indicators found in the baseline. September 2012

7 COST OF THE WORK

The cost of the work is indicated by component in Table 1. It is expected to require 400 days at US\$230/day and consultants work, equalling US\$ 241,000 in fees, plus US\$ 205,000 for travel, and US\$ 184,000 for other costs such as communication, preparation of meetings, and costs for strengthening capacity of partner organisations and national institutions to develop and provide metadata. The Agency support cost rate inclusive 13%

The total cost is **US\$630,000.00**,

TABLE I

Task	Approach	Days	Costs US\$		
			Fees (Manpower/ consultant)	Travel	Other
1. INTEGRATED PLAN FOR REMP AND IMS	<p>An overall plan for the development of the REMP and IMS will be developed as the first activity. The REMP and IMS will focus on the critical transboundary issues identified in the TDA, but will be developed to accommodate they full range of information needed for effective ocean governance. REMP development will be phased to match the institutional capacity and the levels of funding available in the region. The REMP will be planned to be capable of producing consistent, comparable results and supporting the decision-making process at national, sub-regional and regional levels. The preliminary programme will inevitably be modest, focusing on priority transboundary pollutants and key fisheries ecosystems under threat. The design of the REMP programme will be supported by the analysis and gap filling activities done under the TDA and the results from the demonstration projects and assessment carried out for the development of the Regional Governance Framework. An integral part of the REMP design will be a regional awareness and capacity building programme, targeting participating monitoring and advisory bodies.</p> <p>This will be approached by a 3-4 day inception workshop for about 15 people from key partner organisations to: develop the implementation plan as well as to identify key aspects of the IMS, such as its scope of content, structure and the approach to obtaining and including information form partners. Also, the meeting will discuss the possible</p>	10	2,300	32,000	4,600

	linkages to be established between REMP and IMS.				
2. REGIONAL ECOSYSTEM MONITORING FRAMEWORK (REMP)					
a. Conduct a review of existing relevant regional monitoring programmes in the Wider Caribbean Region;	The contractor will conduct a desk review of REMPs in WCR and in others selected regions. This will be done through wide consultation with countries and organisations that are active in the region.	20	4,600	17,000	
b. Assess relevant information that should be integral part of the REMP.	<p>The design of the REMP programme will be informed by the analysis and gap filling activities done under the TDA and the results from the demonstration projects. An integral part of the REMP design will be a regional awareness and capacity building programme, targeting participating monitoring and advisory bodies. Experts will provide relevant input needed to develop a regular process for monitoring of the Caribbean Sea , and seek information on CB programs that might be needed to participate fully in the REMP</p> <p>Communication materials outlining the approach to the REMP and the roles and responsibilities of partners will be prepared and distributed to potential partner organizations.</p> <p>Linkages will be established with the UN Regular Process that is now getting started to determine how best the proposed CLME REMP can interface with the global process.</p> <p>The contractor will also interact with Regional Framework Component and with the CLME pilot projects and case studies to determine how they plan</p>	30	18,400		

	to approach their governance assessment activities. On this basis, plans will be made to contribute to those assessments and to capture the learning from them to be incorporated into the overall regional governance framework.				
c. Interact with the Governance Component to identify a pilot set of relevant Ecosystem Status Indicators (ESI) in collaboration with data and information partners	A pilot set of Ecosystem Status Indicators (ESI) (e.g. process, stress reduction and ecosystem status indicators) of the state of the marine ecosystem, its goods and services and its governance processes to support senior decision making will be identified in collaboration with the governance component and the key data and information partners	30	6,900		11,500
d. Identify an appropriate approach to develop a mechanism to monitor the status and long-term trends for the CLME; Conduct an assessment in collaboration with the Governance Component to identify and ensure that a representative regional intergovernmental organization –IGOs could become an appropriate agency/institution to uptake the long-term coordination role for the REMP after the end of CLME project.	In collaboration with the governance component, the contractor will identify a policy cycle-based mechanism(s) to monitor the status and long-term trends for the full range of topics encompassed by the CLME. While the REMP may ultimately serve several mechanisms one will have to be identified as hosting and having primary oversight of the REMP (see f below). The contractor will collaborate with the governance component to identify potential intergovernmental organizations (IGOs) that may be appropriate agencies/institutions to take on the long-term coordination role for the REMP after the CLME project is over. Identify the characteristics of appropriate host and identify their responsibilities and resources needed as well as the benefits. Start consultations and discussions with potential host organisations (expected to decide it by consensus) Also it is expected to develop operational procedures for the host institution	35	25,300		
e. Implement the REMP in pilot mode;	In collaboration with the governance component the contractor will develop a prototype REMP and will take the REMP process through at least one cycle of	35	8,050		

	the policy cycle-based mechanism(s) identified in (d) above. The REMP prototype developed should deliver the information in an appropriate format for use of decision makers. A working group will be established to assemble, analyze and prepare outputs based on the data related to those indicators available from the IMS.				
f. Identify the most appropriate approach to develop an easy, accessible system to support decision-making processes at the sub-regional and regional level.	Based on the above activities the contractor will provide a rationale and recommendations for an appropriate information system and review process as input to the SAP	20	4,600		
3. INFORMATION MANAGEMENT SYSTEM (IMS)	It is important to note that this activity focuses on senior administrators and decision-makers who are involved in IGOs				
a. Identify the appropriate data and information system for the CLME IMS.	This will be approached through a desk study of information systems in the WCR and other similar regions. These will be reviewed in the context of the TDA and CCA as well as the Expert Consultation on the Operationalisation of the Caribbean Sea Commission at which the need for a data and information system to serve the needs of the CSC was considered and considerable guidance provided in regard to what the characteristics of such a system should be. Refer to item REMP (a) above. With regard to identification of availability of data and information, the contractor will engage with all organisations as well as national departments that might be expected to have data and information that could be included in the system. This will result in a baseline report on sources of information and provide the start to a regional meta-database on fisheries, environmental, biological, pollution and socio-economic data (that might include gender and age information) and information based on needs identified in the TDA. During	10	2,300		

	<p>this process data and information gaps will be identified. This will include results from the case studies and pilot projects.</p>				
<p>b. Identify sources of information and create a regional meta-database required to support an ecosystem approach to fisheries (EAF/ EBM) in the Wider Caribbean Region (e.g. fisheries, environmental, biological, pollution and socio-economic data and information);</p>	<p>With regard to identification of availability of data and information, the contractor will engage with all organisations as well as national departments that might be expected to have data and information that could be included in the system. This will result in a baseline report on sources of information and provide the start to a regional meta-database on fisheries, environmental, biological, pollution and socio-economic data and information based on needs identified in the TDA. This will include results form the case studies and pilot projects.</p>	20	4,600		
<p>c. Include the outputs of the pilot and case study activities.</p>	<p>Liaise with implementing organizations for case studies and pilots to acquire relevant information and metadata</p>	15	3,450		
<p>d. Develop an operational user-friendly platform for the gathering/delivery of GIS data and other relevant information.</p>	<p>Based on the agreed design, an operational platform will be developed and implemented</p>	90	20,700		23,000
	<p>A senior consultant will be required to develop and implement the platform. A small technical meeting is envisaged as necessary for this process</p>		34,150	13,000	17,000
	<p>Costs for partner organisations to develop and provide metadata. It is anticipated that at least 50-60 organizations that will have data and information that should be included in the system. In national departments of Wider Caribbean Countries are included this number could double. It is expected that partners will require varying degrees of assistance to prepare meta-data and to provide access to their data where this is deemed to be appropriate.</p>		68,900		103,400

e. Identification and analysis of potential CLME IMS users and development of a training programme on IMS importance, use and accessibility.	The process will be to identify technical advisors to decision-makers and senior administrators in participating countries and assess their level of capacity to use the system. Also engage with regional organisations to determine who their main users will be and assess their capacity. During this process the preferred modes of delivery of training will be explored. However, while it is expected that there will be face-to-face delivery during the project, a web-based tool that can be used for self-teaching is envisaged.	25	5,750		
	Based on the assessments above, criteria for the training course will be developed, and an expert will be engaged to develop a training program. There will be interaction with ODINCARSA for this activity.			11,500	23,000
f. Develop draft agreements on information and data exchange with identified CLME partner organizations;	The issues relating to the sharing of data and information will be explored and a paper developed on this topic. It will include the various legal options for addressing these issues. Ultimately, a document on guidelines and protocols for sharing information will be developed and included in the information system.	30	6,900		
	Legal advice on this matter.		5,700		
g. Describe the IMS system development and testing protocol.	The final report will provide a full description of the process by which the IMS was developed, how it was tested, measures for assuring its maintenance and sustainability, and a plan for its further development, including a comprehensive report on future relevant information that should be integral part of the REMP and M & E framework.	20	4,600		6,000

Communication of REMP and IMS with partners and countries	There will be a final workshop with all partners and countries that will expose them to the work that has been done, provide training in the use of the system that has been developed, obtain their feedback on changes and improvements that should be incorporated and serve as a test of the system	10	2,300	120,000	
Communications and reporting	Telephone, mail, courier, etc.				7,000
Total		400	241,000	205,000	184,000
Agency support cost rate inclusive 13%			31,330	26,650	23,920
Grand Total					630,000