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**REGIONAL APPROACH FOR DISSEMINATING
RENEWABLE ENERGY TECHNOLOGIES**

PART II

**THE PROGRESS ACHIEVED IN
INITIATING AND ACTIVATING THE
RENEWABLE ENERGY PROMOTION MECHANISM**



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ملخص تنفيذي

مقدمة

في إطار توجه الأمانة التنفيذية للإسكوا لدعم البرامج الهادفة إلى تحقيق التنمية المستدامة بدول المنطقة، فقد وجهت منذ العام ١٩٩٦ اهتماما كبيرا إلى العمل على تطوير تقنيات الطاقة المتجددة ودعم القدرات المحلية والإقليمية لها. وقد أوضحت دراسات الإسكوا أنه على الرغم من الجهود التي بذلتها دول المنطقة في هذا المجال وما نتج عنها من توفر العديد من الخبرات العلمية والفنية، إلا أن تقنيات الطاقة المتجددة لم تحقق حجم الانتشار التطبيقي المناسب. كما أن البرامج التي تم تنفيذها قد اتسمت بالاعتماد على الخبرات الأجنبية دون الاستفادة من الخبرات المتوفرة بدول المنطقة، لذا فقد أعدت الإسكوا عام ١٩٩٧ اقتراحا بإنشاء "الآلية الإقليمية للطاقة المتجددة" للعمل على دعم التعاون الإقليمي بين الدول الأعضاء استنادا إلى الخبرات والقدرات المتوفرة بينها. كما تم خلال عامي ١٩٩٨-١٩٩٩ وضع المقترح التفصيلي لإنشاء الآلية المشار إليها والتشاور مع الدول الأعضاء في شأن ذلك، وقد أسفرت هذه الجهود حتى نهاية عام ١٩٩٩ عن موافقة عشر من الدول الأعضاء على الانضمام إلى الآلية وتحديد نقاط الارتكاز الوطنية لها بالآلية، كما أعدت الإسكوا إطارا عاما للتقارير الوطنية للطاقة المتجددة والتقرير الوطني المصري كنموذج استرشادي لإعداد هذه التقارير وتم توزيعهما على الدول الأعضاء.

وفي إطار برنامج العمل للعامين ٢٠٠٠-٢٠٠١ قام قسم الطاقة بتنفيذ نشاط عملي حول "نهج إقليمي لنشر استخدامات الطاقة المتجددة" يستهدف متابعة الجهود المبذولة لإنشاء الآلية الإقليمية للطاقة المتجددة وبدء تفعيل أنشطتها بالتنسيق مع نقاط الارتكاز الوطنية في الدول الأعضاء، يتضمن ذلك: (١) استكمال إعداد التقارير الوطنية للطاقة المتجددة؛ (٢) تنظيم وعقد ندوة لبدء تفعيل الآلية الإقليمية للطاقة المتجددة؛ (٣) إعداد مذكرة تفاهم بين الدول الأعضاء حول "إنشاء وتفعيل الآلية"؛ (٤) إعداد التقرير الإقليمي للطاقة المتجددة؛ (٥) إعداد مقترح لبرنامج عمل الآلية للعامين ٢٠٠١-٢٠٠٢ وعرضه على نقاط الارتكاز الوطنية لإقراره؛ بالإضافة إلى (٦) تحديث مقترح مشروع "نشر استخدامات الطاقة المتجددة بالمناطق الريفية ببلدان الإسكوا" لتضمينه عناصر تركز على تحسين نوعية الحياة للنساء والأطفال وتشجيع الصناعات الصغيرة في هذه المناطق. هذا وتعرض إنجازات ونتائج النشاط العملي المشار إليه في جزأين:

الجزء الأول، يعرض "التقرير الإقليمي للطاقة المتجددة" متضمنا إنجازات الطاقة المتجددة في دول المنطقة، ويخلص إلى تحديد مجالات التعاون الإقليمي في المجالات المقترحة تفعيلها عن طريق الآلية الإقليمية للطاقة المتجددة؛

الجزء الثاني، ويعرض "للتقدم المحرز في شأن إنشاء وتفعيل الآلية الإقليمية للطاقة المتجددة"، والذي تعرض له هذه الوثيقة في أربعة فصول، يعرض الفصل الأول منها للتقدم المحرز في شأن إجراءات إنشاء الآلية وما تم إنجازه من برنامج عملها للعامين ٢٠٠١-٢٠٠٢، فضلا عن أن الفصلين الثاني والثالث يعرضان بشكل أكثر تفصيلا لوقائع ندوة تفعيل الآلية الإقليمية للطاقة المتجددة ومقترح المشروع المحدث حول "نشر استخدامات الطاقة المتجددة بالمناطق الريفية ببلدان الإسكوا" كما يعرض الفصل الرابع خلاصة ما تم من إنجازات في إطار برنامج عمل الآلية والأنشطة والإجراءات المقترحة للعامين ٢٠٠٢-٢٠٠٣ وذلك على النحو المبين فيما يلي:

ألف - التقدم المحرز لإنشاء وبدء تفعيل الآلية الإقليمية للطاقة المتجددة

في إطار الجهود التي بذلتها الإسكوا بالتشاور والتنسيق مع نقاط الارتكاز الوطنية بالدول الأعضاء فقد تم إحراز تقدم واضح في الموقف التنفيذي لإنشاء وتفعيل الآلية الإقليمية للطاقة المتجددة يتلخص بالآتي:

١- وافقت إثنتا عشرة دولة من الدول الأعضاء بالإسكوا على الانضمام إلى الآلية وحددت نقاط الارتكاز الوطنية لها طبقاً للوارد في الجدول ١، في الصفحة ٤ من هذه الوثيقة.

٢- أتمت الإسكوا تنظيم وعقد "ندوة بدء تفعيل الآلية الإقليمية للطاقة المتجددة" والتي عقدت ببيت الأمم المتحدة في بيروت بتاريخ ٥ تشرين الأول/أكتوبر ٢٠٠٠، حيث عرضت وحدة تنسيق الآلية للآتي: (أ) التقدم المحرز في شأن إجراءات إنشاء الآلية حتى تاريخ انعقاد الندوة؛ (ب) مسودة التقرير الإقليمي للطاقة المتجددة؛ بالإضافة إلى (ج) مقترح برنامج عمل الآلية للعامين ٢٠٠١-٢٠٠٢.

٣- خلصت مناقشات ممثلي نقاط الارتكاز الوطنية للوثائق التي عرضتها وحدة التنسيق إلى الآتي:

(أ) تم اعتماد مذكرة التفاهم بين نقاط الارتكاز الوطنية للآلية بالدول الأعضاء والمتضمنة أهداف الآلية ومسؤوليات الأطراف المختلفة. وقد وقع ممثلو ثماني دول أعضاء على المذكرة بتاريخ ٥ تشرين الأول/أكتوبر ٢٠٠٠ وعلى أن تستكمل التوقعات للدول الثلاث الأخرى تبعاً؛

(ب) إعلان بدء عمل الآلية وتفعيل أنشطتها اعتباراً من تاريخ التوقيع على مذكرة التفاهم؛

(ج) إقرار برنامج عمل الآلية للعامين ٢٠٠١-٢٠٠٢ متضمناً قيام وحدة تنسيق الآلية بالتعاون مع نقاط الارتكاز الوطنية في إتمام الآتي: (١) السعي لانضمام باقي الدول الأعضاء إلى الآلية؛ (٢) المتابعة مع نقاط الارتكاز الوطنية لاستكمال التقارير الوطنية للطاقة المتجددة؛ (٣) إعداد التقرير الإقليمي للطاقة المتجددة؛ (٤) تحديد الجهات الوطنية المختصة بكل بلد؛ (٥) إعداد قاعدة بيانات للطاقة المتجددة بالمنطقة يكون التقرير الإقليمي أساساً لها؛ بالإضافة إلى (٦) تطوير وتحديث مقترح المشروع الخاص بنشر استخدام الطاقة المتجددة بالمناطق الريفية والسعي إلى تفعيل أنشطته الأساسية؛

(د) دعوة نقاط الارتكاز الوطنية لاتخاذ اللازم لتحديد احتياجات دولها في مجال تنمية استخدام الطاقة المتجددة والتنسيق مع الإسكوا كمنظمة دولية لتوفير المساندة اللازمة لذلك من خلال أنشطة الآلية؛

(هـ) دعوة الإسكوا إلى تنظيم اجتماع سنوي دوري بالتنسيق مع نقاط الارتكاز الوطنية لمناقشة التطورات في مجال الطاقة المتجددة وتحديث التقارير الوطنية وتبادل المعلومات والخبرات في هذا المجال؛

(و) إنشاء موقع على شبكة الإنترنت لتبادل المعلومات الخاصة بأنشطة الدول الأعضاء في مجال الطاقة المتجددة وإنجازات وبرامج الإسكوا في هذا المجال.

باء- التقدم المحرز في تنفيذ برنامج عمل الآلية الإقليمية للطاقة المتجددة ٢٠٠١-٢٠٠٢

في ضوء برنامج العمل الذي تم إقراره فقد تم خلال الفترة تشرين الأول/أكتوبر ٢٠٠٠ - أيلول/سبتمبر ٢٠٠١ تحقيق الإنجازات الآتية:

١- الأنشطة التي تم إنجازها من برنامج عمل الآلية ٢٠٠١-٢٠٠٢

(أ) عضوية الآلية: انضمت دولة قطر إلى الآلية ليصبح عدد الأعضاء إثنا عشر عضواً، وتم تحديد الشركة القطرية العامة للنفط كنقطة ارتكاز وطنية للدولة؛

(ب) استكمال التوقيع على مذكرة التفاهم: تم استكمال توقيع كل من دولة البحرين ودولة الكويت والسلطة الوطنية الفلسطينية، وذلك بتاريخ ١٢ تشرين الأول/أكتوبر ٢٠٠١؛

(ج) التقارير الوطنية للطاقة المتجددة: حتى أيلول/سبتمبر ٢٠٠٠: تم إعداد ستة تقارير وطنية لكل من مصر، والأردن، واليمن، ولبنان، والجمهورية العربية السورية، بالإضافة إلى السلطة الفلسطينية. كما وردت تقارير أولية لكل من سلطنة عمان ودولة الإمارات العربية المتحدة. كما قامت وحدة التنسيق بتجميع البيانات المرتبطة بباقي الدول الأعضاء من خلال الأوراق وتقارير النشاط المنشورة سواء بالاجتماعات الفنية للإسكوا أو غيرها. كما ورد خلال شهر أيلول/سبتمبر ٢٠٠١ تقرير موجز من دولة الكويت؛

(د) التقرير الإقليمي للطاقة المتجددة: أتمت الإسكوا إعداد التقرير الإقليمي للطاقة المتجددة استناداً على ما ورد بالتقارير الوطنية والدراسات والمراجع المتوفرة لها. ويتضمن التقرير سبعة فصول وملخص باللغة العربية. يعرض الفصل الأول للعلاقة بين الطاقة المتجددة وإمكانات تحقيق التنمية الاقتصادية والاجتماعية المستدامة، ويعرض الفصل الثاني للبناء المؤسسي والتشريعي للطاقة المتجددة في دول المنطقة، بينما تتناول الفصول الثالث إلى السادس عرض الموقف التطبيقي والتوقعات المستقبلية لتقنيات الطاقة الشمسية الحرارية، والخلايا الشمسية، وطاقة الرياح، وطاقة الكتلة الحية بدول المنطقة. ويخلص التقرير في الفصل السابع إلى تحديد المجالات المقترحة للتعاون الإقليمي ودون الإقليمي بين دول المنطقة في هذا المجال والوارد ملخصاً لها في الملحق الأول لهذا التقرير. هذا وسيتم توزيع التقرير على نقاط الارتكاز الوطنية والجهات المختصة بالدول الأعضاء وإدراجه في موقع الإسكوا على شبكة الإنترنت (www.escwa.org.lb)؛

(هـ) تطوير وتحديث مقترح مشروع "نشر استخدام الطاقة المتجددة بالمناطق الريفية والنائية"، وذلك على النحو الوارد في الفصل الثالث من هذه الوثيقة وبالتركيز على تحسين الظروف المعيشية لسكان الريف وعلى الأخص النساء والأطفال مع تضمين أنشطة المشروع عناصر لبناء القدرات الوطنية في هذا المجال، وإنشاء صناعات حرفية صغيرة لتوفير فرص عمل بالمناطق الريفية. فضلاً عن ذلك فقد تم وضع مقترح المشروع في الإطار الهيكلي المطلوب لجهات التمويل وتم بالفعل تقديمه إلى بعضها.

وفي ضوء ما تقدم يتضح أنه قد تم تنفيذ أغلب الأنشطة التي تضمنها برنامج عمل الآلية للعامين ٢٠٠١-٢٠٠٢، وعلى أن يتم استكمال الإجراءات المرتبطة ببعضها أو تحديث مخرجاته خلال عامي ٢٠٠٢-٢٠٠٣ طبقاً لما سيرد لاحقاً:

٢- أنشطة إضافية تم تنفيذها

(أ) في إطار حرص الإسكوا على تفعيل أنشطة الآلية وتنفيذاً لتوصية نقاط الارتكاز الوطنية خلال ندوة بدء تفعيل الآلية في تشرين الأول/أكتوبر ٢٠٠٠، نظم قسم الطاقة الاجتماع السنوي الدوري الأول لنقاط الارتكاز الوطنية والذي انعقد بتاريخ ١٢ تشرين الأول/أكتوبر ٢٠٠١، بمقر الإسكوا، بيت الأمم المتحدة، بيروت، بالارتباط مع اجتماع الدورة الثالثة للجنة الطاقة؛

(ب) استجابة لطلب وزارة الطاقة والثروة المعدنية الأردنية، نظم قسم الطاقة بالتعاون مع هيئة الطاقة المتجددة بجمهورية مصر العربية وبمساعدة من المكتب الإقليمي لليونسكو بالقاهرة، برنامجاً "بناء القدرات الوطنية في مجال طاقة الرياح"، عقد بالقاهرة في الفترة ٨-٢٠ أيلول/سبتمبر ٢٠٠١ بالتعاون مع هيئة الطاقة المتجددة المصرية وبحضور ممثلي خمس من الدول الأعضاء هي: الأردن، واليمن، ولبنان،

والجمهورية العربية السورية، والسلطة الفلسطينية، وقد تضمن البرنامج التدريب في مجالات متعددة لطاقة الرياح وزيارة لمزرعة توليد الكهرباء بقدرة (٦٣ م.و.) بمنطقة الزعفرانة. وقد كان نموذجاً للتعاون الإقليمي في هذا المجال. وأبدى المشاركون رغبتهم في تكرار هذه الأنشطة في كافة مجالات الطاقة المتجددة.

جيم - الخلاصة والتوصيات

١- الخلاصة

يتضح مما تقدم أنه في إطار تنفيذ النشاط العملي لقسم الطاقة بالإسكوا حول "مدخل إقليمي لنشر استخدامات الطاقة المتجددة"، فقد تحققت الأهداف المخططة للبرنامج وتضمنت استكمال إجراءات "إنشاء الآلية الإقليمية للطاقة المتجددة وبدء تفعيل أنشطتها بتاريخ ٥ تشرين الأول/أكتوبر ٢٠٠٠؛ فضلاً عن إعداد وإقرار برنامج عمل الآلية للعامين ٢٠٠١-٢٠٠٢ وتنفيذ العديد من عناصره؛ ويضاف إلى ذلك أنه قد تم تنظيم وتنفيذ برنامجاً لـ "بناء القدرات الوطنية في مجال طاقة الرياح" شارك في حضوره عشرة متدربين من خمس دول أعضاء. كما اتخذت الإسكوا الإجراءات اللازمة لانعقاد الاجتماع الدوري الأول للآلية الإقليمية للطاقة المتجددة في ١٢ تشرين الأول/أكتوبر ٢٠٠١، بالارتباط مع اجتماع الدورة الثالثة للجنة الطاقة.

٢- التوصيات

في ضوء ما تحقق من إنجازات، وأنشطة مطلوب استكمالها لبرنامج عمل ٢٠٠١-٢٠٠٢ للآلية، يقترح أن يتم التنسيق بين الإسكوا ونقاط الارتكاز الوطنية للآلية في المجالات الآتية:

(أ) اتخاذ الإجراءات اللازمة لإعداد قاعدة بيانات وإنشاء موقع على شبكة الإنترنت للطاقة المتجددة وذلك استكمالاً لما اتخذته الإسكوا من وضع التقرير الإقليمي للطاقة المتجددة على شبكة الإنترنت حتى يمكن للدول الأعضاء تحديث بياناتها وتبادل المعلومات المحدثة من خلالها؛

(ب) قيام نقاط الارتكاز الوطنية باستكمال حصر الجهات الوطنية والخبراء بكل من الدول الأعضاء وتوفير البيانات الخاصة بهم إلى وحدة التنسيق لإعداد بيان مرجعي بالخبرات المتوفرة على المستوى الإقليمي وإضافتها إلى قاعدة بيانات الطاقة المتجددة المخطط إنشاؤها؛

(ج) قيام الإسكوا بمتابعة تسويق مقترح المشروع الخاص بنشر استخدامات الطاقة المتجددة بالمناطق الريفية إلى جهات التمويل والبدء بتنفيذ أنشطته طبقاً لتوفر التمويل اللازم ومتطلبات الدول الأعضاء؛

(د) الاستمرار في تنظيم وتنفيذ أنشطة لبناء القدرات الوطنية في المجالات المختلفة للطاقة المتجددة بالتنسيق مع نقاط الارتكاز الوطنية لتحديد المجالات التي تحتاجها الدول الأعضاء؛

(هـ) التنسيق مع منظمات الأمم المتحدة المختصة لتنظيم وتنفيذ برامج لرفع مستوى الوعي العام في هذا المجال؛

(و) استكمال ما بدأته الإسكوا من دراسات لتقييم المجالات التطبيقية المختلفة للطاقة المتجددة.

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ABBREVIATIONS

CDM	Clean Development Mechanism
CU	Coordination unit
DSWH	Domestic solar water heaters
EIS	Energy Issues Section
ENRED	Energy, Natural Resources and Environment Division
ESCWA	Economic and Social Commission for Western Asia
EU	European Union
GEF	Global Environmental Facility
GHG	Greenhouse gas
ILO	International Labour Organization
MC	Member country
MOU	Memorandum of Understanding
NFP	National focal point
NGO	Non-governmental organization
NREA	New and Renewable Energy Authority (Egypt)
R&D	Research and development
RB	Regular budget
RE	Renewable energy
REPM	Renewable Energy Promotion Mechanism
RREP	Regional renewable energy profile
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNIFEM	United Nations Development Fund for Women
UNIDO	United Nations Industrial Development Organization
WHO	World Health Organization
XB	Extra-budgetary

INTRODUCTION

A. BACKGROUND

In the light of the need for developing more sustainable energy patterns and increasing energy accessibility particularly for poor and rural areas in the region, the Economic and Social Commission for Western Asia (ESCWA) Secretariat has directed since 1997 concerted efforts towards the development of renewable energy technologies.

The programme of work of the ESCWA Energy Issues Section (EIS) in the biennium 1996-1997 included an assessment study on "Regional Programme for the Development of New and Renewable Energy Resources: Assessment and Prospects" (E/ESCWA/ENR/1997/14). The study assessed the status of renewable energy (RE) in the region as of 1997 and evaluated the prospects for its future development. The study also outlined a regional programme for promoting renewable energy applications. The programme recognized the need for an appropriate coordination and promotional mechanism to coordinate the available renewable energy expertise and resources for the mutual benefit of the ESCWA member countries (MCs). It was in the light of these developments that a preliminary project proposal was prepared for the creation of a Renewable Energy Promotion Mechanism (REPM) in the ESCWA region.

In addition, ESCWA's programme of work for the biennium 1998-1999 included an activity on "Promotion of new and renewable sources of energy, with particular emphasis on rural and remote areas" (E/ESCWA/ENR/1999/24) with a core objective to develop the REPM concept, establish the procedures required for its creation and follow up with the ESCWA member countries to facilitate its realization. In the course of implementation of these objectives, the ESCWA Secretariat has conducted intensive consultations with the ESCWA member countries to promote the REPM and to discuss its potential impact on the development of renewable energy in the region. The proposal was positively received and welcomed by the ESCWA member countries. As of 1999, 10 ESCWA member countries have agreed to participate in the REPM and have nominated their national focal points (NFPs). ESCWA has also developed a framework for the preparation of renewable energy country profiles, and circulated it to the ESCWA member countries as a guide for preparing their country profiles. In addition, a model country profile for Egypt was prepared with the same objective.

B. OBJECTIVES

As a further step towards the development and wide scope field applications of renewable energy technologies in the region, the EIS has included in its 2000-2001 work programme an operational activity for developing "A regional approach for disseminating renewable energy technologies in the ESCWA region." The core objective of this activity is that EIS, as a coordinating unit (CU) of the REPM, in coordination with the designated NFPs, promotes actions towards the initiation and activation of the mechanism. In particular:

- (a) To continue coordinating efforts with NFPs for the preparation of: (i) renewable energy country profiles, and (ii) a regional renewable energy profile (RREP). Each profile would include identification of resources, institutional framework, application status and future prospects of the mature and maturing renewable technologies as well as identifying opportunities for subregional and regional cooperation;
- (b) To foster actions for the establishment of the mechanism and launching its activities with particular emphasis on renewable energy capacity-building. To facilitate the implementation of this activity the CU has taken the following actions: (i) following-up with NFPs in ESCWA member countries on the review and approval of the "Memorandum of understanding on establishment and activation of the renewable energy promotion mechanism (REPM) in the ESCWA region;" (ii) preparing a draft two-year plan of work for the REPM, to be discussed and endorsed by the NFPs; (iii) organizing a seminar on the initiation of the REPM; and (iv) initiating the activation of the 2001-2002 programme in coordination with NFPs, as appropriate.

C. STATUS AND OUTCOME

Early 2000, the CU started intensive communications and consultations with the designated NFPs to foster the preparation of the country profiles and reach consensus among NFPs on the memorandum of understanding drafted by the CU to govern the REPM activities and operational links. Meanwhile, several actions were taken to realize the objectives set above for the activity described under item (b) above. The outcome of the subject operational activities during the period 2000-2001 is being presented in two volumes:

Volume I: The Regional Renewable Energy Profile.

Volume II: The Progress Achieved in Initiating and Activating the Renewable Energy Promotion Mechanism.

Volume I presents the final version of the RREP prepared by the CU in seven chapters analysing the rationale for disseminating renewable energy technologies in the region, assessing the current status of renewable energy institutional frameworks, and describing the status and future prospects of four main renewable energy technologies that have promising potentials in the region, namely, solar thermal, photovoltaic, wind and biomass. It also presents the cooperation programmes on RE that have been implemented by the ESCWA member countries, the existing regional institutions and cooperation mechanisms, and concludes with identifying the potential regional cooperation areas that can be activated through the REPM. The RREP will be distributed to NFPs and other concerned bodies in the ESCWA member countries, periodically updated, and published on the ESCWA web site (www.escwa.org.lb).

The present report (volume II), presents in four chapters the progress achieved in initiating and activating the REPM during the biennium 2000-2001. Chapter I overviews the procedure and implementation status of the REPM initiation and activation. It briefly reports on the actions undertaken to implement each planned activity and the progress achieved as of September 2001. This chapter also points out the additional activities undertaken by the EIS (the CU of the REPM) in line with the REPM operational phase objectives. Chapter II elaborates on the events, presentations, discussions and recommendations of the REPM initiation seminar held on 5 October 2000. Chapter III presents the updated project proposal on "Dissemination of renewable energy services for the rural villages in the ESCWA member countries." Finally, chapter IV concludes this report with a summary of the current REPM status and recommended actions for the period 2002-2003.

Each of the two volumes includes an Arabic executive summary of the contents to facilitate easy reference for planners and executives of the relevant organizations in the ESCWA region.

I. THE PROCEDURE AND STATUS OF THE INITIATION AND ACTIVATION OF THE RENEWABLE ENERGY PROMOTION MECHANISM

A. THE PROCEDURE AND 1999 DEVELOPMENT STATUS

1. The procedure (1)

Based on the initial consensus expressed by ESCWA member countries regarding the renewable energy promotion mechanism (REPM), and in the light of the updated proposal developed in 1999, the following procedures were developed for the initiation, realization and activation of the REPM:

- (a) To reach a consensus among the ESCWA member countries regarding the membership of the mechanism and identification of national focal points (NFPs);
- (b) To prepare a memorandum of understanding among the NFPs to set the REPM basic objective, obligations as well as operational links and conditions;
- (c) To coordinate with the ESCWA member countries regarding the preparation of renewable energy country profiles identifying national resources, institutional activities, capabilities and needs in this field;
- (d) To prepare a regional renewable energy profile identifying possible areas of cooperation among the ESCWA member countries based on the capabilities and needs identified by the country profiles;
- (e) To prepare a two-year work plan for the REPM in consultation with national focal points;
- (f) To organize an initiation seminar among the NFPs to overview the REPM development status and plans, as well as to endorse the memorandum of understanding;
- (g) To develop an inventory of renewable energy institutions, expertise and business entities;
- (h) To promote actions for further developing the project proposal on "Disseminating renewable energy services to the rural areas of ESCWA member countries";
- (i) To follow-up on the REPM operational activities.

2. The 1999 development status

As a result of the efforts directed by the ESCWA Secretariat towards the initiation of the Renewable Energy Promotion Mechanism (REPM) during the biennium 1998-1999, the REPM proposal was welcomed by ESCWA member countries. As of the end of 1999, 10 ESCWA member countries have agreed to participate in the REPM and have nominated their NFPs. ESCWA has also developed a framework for the preparation of renewable energy country profiles, and has circulated it to ESCWA member countries as a guide for preparing their country profiles. In addition, a model country profile for Egypt was prepared with the same objective. The details of actions undertaken and the development achieved during the biennium 1998-1999 are reported in the ESCWA document (E/ESCWA/ENR/1999/24) (1).

B. THE 2000-2001 PLANNED ACTIONS AND CURRENT STATUS

Based on the REPM development status by the end of 1999, the core objective of the activities implemented in the biennium 2000-2001 was that the Energy Issues Section (EIS) as a coordination unit (CU) of the REPM, in coordination with the designated NFPs, promotes actions towards the initiation and activation of the mechanism. In the course of implementation of such an objective, the following actions were planned and undertaken:

- (a) Continuing consultation with the remaining ESCWA member countries to join the REPM;
- (b) Coordinating efforts with NFPs for the preparation of renewable energy country profiles;

(c) Preparing the ESCWA regional renewable energy profile, including the identification of the potential regional cooperation opportunities;

(d) Following-up with the ESCWA member countries on the review and approval of the draft memorandum of understanding;

(e) Preparing a draft two-year (2001-2002) plan of work for the REPM, to be discussed and endorsed by the NFPs;

(f) Organizing the planned REPM initiation seminar among the CU and NFPs;

(g) Developing further the project proposal on "Disseminating renewable energy services to the rural areas of ESCWA member countries."

The coordination unit has directed efforts towards implementing the above-given planned actions for REPM initiation and activation and the following reports on the actions undertaken and the current development status.

1. REPM membership and national focal points

The ESCWA Secretariat continued contacts and consultations with the remaining ESCWA member countries for joining the REPM. In conclusion, Bahrain expressed interest in August 2000, and the Ministry of Electricity and Water was designated as their NFP. After attending the initiation seminar in October 2000, the participating experts from Qatar took note of the REPM objectives and status. Consequently, Qatar also expressed interest and identified the Qatar General Electricity and Water Corporation as their NFP. On the other hand, the authorities of Saudi Arabia have not responded to the REPM proposal.

In view of the above, by late 2000, 12 ESCWA member countries have joined the REPM and nominated their respective NFPs. Table 1 shows a list of the designated NFPs.

TABLE 1. THE NATIONAL FOCAL POINTS OF THE ESCWA REPM*

ESCWA member	National focal point
Bahrain	Ministry of Electricity and Water
Egypt	New and Renewable Energy Authority, Ministry of Electricity and Energy
Iraq	National Committee for Technology Transfer
Jordan	National Energy Research Center
Kuwait	Ministry of Electricity and Water
Lebanon	Electricité du Liban
Oman	Sultan Qaboos University
Palestine	Palestinian Energy Authority, Palestinian National Authority
Qatar	Qatar General Electricity and Water Corporation
Syrian Arab Republic	Ministry of Electricity
United Arab Emirates	Ministry of Electricity and Water
Yemen	Public Electricity Corporation, Ministry of Electricity and Water

* REPM stands for the Renewable Energy Promotion Mechanism.

2. The preparation of renewable energy country profiles

To facilitate the identification of possible areas of bilateral, subregional and regional cooperation in the field of renewable energy among the ESCWA member countries, the ESCWA Secretariat had coordinated with the NFPs the preparation of a renewable energy country profile for each ESCWA member country containing information on the available renewable energy resources, the development status of the respective technologies in the country, as well as the available institutional framework, expertise and capabilities, together with specifying the possible fields of regional cooperation.

Realizing that the country profiles must be prepared in a consistent form to facilitate the subsequent preparation of the regional profile, the CU had circulated to the NFPs both the framework for the preparation of renewable energy country profiles and the model country profile for Egypt prepared in 1999, to assist them in preparing their national renewable energy profiles. As well, the Energy, Natural Resources and Environment Division (ENRED) has kept contact with the NFPs to follow-up on the finalization and submission of the individual profiles as a base for preparing the regional profile and identifying the areas for cooperation among the ESCWA member countries (2).

By September 2000, prior to the REPM initiation seminar, six excellent to satisfactory country profiles were completed and received by the CU, which provided substantive support to three countries (Lebanon, the Syrian Arab Republic and Yemen) to enable them to finalize their country profiles. The completed profiles were those of Egypt, Jordan, Lebanon, Palestine, the Syrian Arab Republic and Yemen. In addition, a draft report for Oman was also received, and preliminary reports on renewable energy activities in Iraq, Saudi Arabia, the United Arab Emirates and Bahrain were presented in the Expert Group Meeting on Disseminating Renewable Energy Technologies in ESCWA Member States held in Beirut from 2-5 October 2000, while that of Qatar is not yet made available to the coordination unit. The country profile of Kuwait was just received in mid-September 2001. All received country profiles were subject to careful review and assessment by the CU in preparation for the regional profile.

3. The preparation of the regional renewable energy profile

In September 2000, based on the information collected from individual country profiles describing the RE status in six countries, together with the outcome of previous ESCWA studies and resources, the CU prepared a draft for the regional renewable energy profile. The draft report was presented to the representatives of the NFPs for discussion during the REPM initiation seminar, and was later updated by incorporating the information collected from the national reports submitted during the seminar and the recommendations made in that seminar on the draft report (2).

The final version of the regional renewable energy profile (RREP), which is being presented under volume I of this activity report, was finalized early September 2001 and incorporated seven chapters: The first chapter overviews the links between the status of the energy sector and the main demographic and economic features that justify the need for disseminating RE technologies in the region, and discusses their impacts. Chapter II assesses the current status of RE institutional frameworks in ESCWA member countries. Chapters III through VI describe the status and future prospects of the four main RE technologies that have promising potentials in the region, in particular solar thermal, photovoltaic, wind and biomass. Finally, chapter VII discusses the existing and potential RE cooperation and coordination programmes in the region. In addition, this document includes an Arabic executive summary of the RREP to facilitate easy reference for planners and decision makers in the relevant organizations of the region (3).

The assessment given by the RREP has concluded that the rationale for REPM establishment effectively address the need in the region for fostering regional cooperation for developing renewable energy applications among ESCWA member countries. The regional profile has identified a set of potential areas for regional cooperation, where ESCWA member countries can exchange their expertise and intensify their mutual capabilities for enhancing renewable energy contribution to the economic and social development in the region. Those potential areas include: (a) renewable energy assessment; (b) assessment and planning studies; (c) institutional strengthening; (d) project design and implementation; (e) supporting technology transfer and possible local manufacture; and (f) information, education and training. Annex I presents a brief on such potential areas for regional cooperation.

Those areas of potential regional cooperation address a framework for the potential cooperation among ESCWA member countries and specific activities have to be identified on the basis of practical needs and available capabilities in the region. The CU of the ESCWA REPM will continue coordinating with NFPs for identifying such specific needs and formulating subregional and regional programmes and/or mutual services based on it to enhance the region's capacity in the field of renewable energy.

The benefits that are expected to be gained through such regional cooperation include, but are not limited to: (a) accelerating the promotion of renewable energy technologies to the commercial phase; (b) establishing mechanisms to enable joint financing of projects; (c) enhancing regional awareness about the possible contribution of renewable energy to the energy needs; (d) reducing development costs through integration of technical and institutional capabilities; (e) enhancing the opportunities for establishing local renewable energy industries through increased market volume; (f) creating job opportunities and improving the situation of women in rural and remote areas; and (g) better economic feasibility since the costs of renewable energy systems would go down due to larger markets.

The final version of the RREP will be distributed to the ESCWA member countries, NFPs and members of the ESCWA Committee on Energy. It will also be periodically updated through the cooperation between NFPs and the CU of the mechanism, and in light of relevant ESCWA studies and available references. In addition, the CU will publish the contents of the RREP on the ESCWA web site (www.escwa.org.lb). The information on RE status will be available under two categories: the first one provides regional information by resources, and the second category provides country information by resources. A user-friendly interface has been designed to allow the users to navigate through the whole document and access the required information directly by simply clicking on the relevant dialog boxes that will be displayed on the screen.

4. Preparation and endorsement of the memorandum of understanding

Given that launching and activation of the REPM requires official commitment to its objectives and parties' responsibilities and implementation procedures, the ESCWA Secretariat, after reaching consensus with the concerned authorities in the ESCWA member countries regarding the concept, objective and membership of the REPM, has prepared a draft memorandum of understanding defining the objectives of the mechanism and the responsibilities of each party. The endorsement of the memorandum of understanding by each NFP would imply its commitment to the mechanism objectives, responsibilities and implementation procedures.

Based on the consultations with the NFPs and the consensus reached on the final agreed version of the memorandum of understanding among the 11 ESCWA member countries who joined the mechanism as of October 2000, the memorandum of understanding was endorsed by 8 NFPs during the initiation seminar, while 3 NFPs waited for approval from their respective legal authorities. Consequently, the REPM was declared operative on 5 October 2000 (4). In 12 October 2001 the representatives of three countries namely, Bahrain, Kuwait and the Palestinian Authority have signed the memorandum.

The endorsed memorandum of understanding was composed of eight articles. Article I provides definitions of major terminologies used in the memorandum of understanding; article II defines the objectives of the mechanism; articles III and IV describe the REPM establishment procedure and the organizational set-up and coordination linkages respectively; article V defines the obligations and coordination procedures; article VI relates to the objectives and functions of the REPM bodies; article VII explains the basis of membership and accession to the mechanism; and, finally, article VIII sets rules for the operation, validation, amendment and termination of the mechanism. The complete text of the endorsed memorandum of understanding is given in annex II to the present report.

5. The two-year (2001-2002) work programme (2, 4)

To facilitate the activation of the mechanism, the CU prepared a draft two-year plan of work for the REPM, which was discussed by the NFP representatives during the REPM initiation seminar on 5 October 2000. Based on the discussions, some modifications and amendments were added to the draft proposal, and the final version was endorsed by the NFPs to formulate the first two-year work programme for the REPM.

The (2001-2002) work programme of the REPM is targeting that all ESCWA member countries join the mechanism, finalizing the renewable energy country and regional profiles, developing a renewable energy database on ESCWA member countries' capabilities and needs in the renewable energy field, coordinating and providing support to ESCWA member countries in developing renewable energy applications and identifying funding sources for it. More specifically, the programme as endorsed by NFPs includes:

(a) The REPM CU should continue to coordinate with NFPs to ensure that all ESCWA member country profiles would be submitted to the CU to enable it to update and finalize the regional renewable energy profile;

(b) The CU should continue consulting with the remaining ESCWA member countries to join the REPM or to identify possible links with it;

(c) The NFPs should direct efforts towards identifying the concerned and interested national entities in their respective countries, assess their capabilities or needs and develop an updated inventory of the national renewable energy institutions, expertise and business entities;

(d) In coordination with the NFPs and on the basis of the outcome of recommendation (a) above, the CU would: (i) develop a regional inventory of the renewable energy institutions, expertise and business entities and communicate it to the NFPs; and (ii) take action for establishing an ESCWA regional renewable energy database with its first phase devoted to the subject inventory;

(e) The CU and NFPs have to promote actions for the implementation of the proposed project on the dissemination of renewable energy services to the rural areas in the ESCWA member countries. Those actions may be devoted to all or any of the project activities, namely: (i) a renewable energy assessment study; (ii) development of an awareness campaign on renewable energy for sustainable development; (iii) renewable energy capacity-building; (iv) market development and promotion; and (v) demonstration of renewable energy systems in rural areas.

6. The REPM initiation seminar (4)

According to the procedure described earlier for the initiation and activation of the REPM and the consensus reached by mid-2000 among 11 ESCWA member countries on joining it, the CU has organized an initiation seminar to activate actions for officially launching the REPM within the framework of the Expert Group Meeting on Disseminating Renewable Energy Technologies in ESCWA Member States.

The REPM initiation seminar was held on 5 October 2000 as a platform for ESCWA, the identified NFPs, and other regional experts to: (a) discuss and review the REPM development status; (b) present the draft (2001-2002) work plan proposed by the CU; (c) endorse the Memorandum of Understanding governing the REPM activities and operational links; and (d) present and review the draft regional renewable energy profile prepared by the CU. Chapter II elaborates on the seminar events, presentation, conclusions and recommendations.

7. The updated project proposal on disseminating renewable energy services to rural areas in ESCWA member countries

In implementation of the NFPs recommendations for the first two-year programme of the REPM, the CU has conducted preliminary consultations with different agencies on the project objectives and possibilities for financing its activities. Several modifications were introduced to the draft proposal so as to satisfy the requirements for funding by donor agencies, particularly to reflect more clearly the issues relevant to the development of women, improving the quality of life in rural areas, and the project's environmental impact. In addition, the project proposal format was modified to match the framework for United Nations project proposal preparation. The updated project described in chapter III of this report has been discussed and/or submitted to different funding parties, particularly the ESCWA trust fund committee and the United Nations Fund for International Partnership.

Given the importance of the capacity-building activity addressed by the proposal, the CU has initiated contacts with the United Nations Educational, Scientific and Cultural Organization (UNESCO) to explore the possible UNESCO contribution to the implementation of the planned capacity-building and the awareness campaign activities. In addition, UNESCO acknowledged the ESCWA initiative for establishing the REPM with its objectives in line with the global projects of the World Solar Programme, including: training, increasing energy accessibility and water desalination. The two parties agreed to keep regular communications on possible activities within ESCWA's REPM that coincide with UNESCO's activities in

renewable energy. Also, UNESCO and ESCWA agreed to jointly support and implement a capacity-building programme in the area of renewable energy with particular emphasis on rural areas for poverty alleviation.

C. ADDITIONALLY IMPLEMENTED ACTIVITIES

1. *The first REPM annual follow-up meeting*

To activate the operational start of the REPM and in response to the recommendations of the NFPs during the initiation seminar, the CU has taken actions to organize the first annual follow-up meeting of the REPM in October 2001. The meeting will provide the opportunity to:

- (a) Discuss the progress made in the implementation of the REPM two-year programme;
- (b) Discuss the outcome of the regional renewable energy profile prepared by the CU;
- (c) Evaluate the progress made regarding the wind energy capacity-building programme;
- (d) Exchange information on the advances in renewable energy activities in ESCWA member countries;
- (e) Recommend activities to be carried out in the next two-year programme;
- (f) Discuss funding resources and cooperation strategies for activating the REPM potential.

2. *The programme on wind energy capacity-building (5, 6)*

Upon request from the Jordanian Ministry of Energy and Mineral Resources, the EIS in coordination with the New and Renewable Energy Authority (NREA) of Egypt have designed an intensive programme for capacity-building in the area of wind energy. The programme incorporates seven subprogrammes covering the areas that concern different targeted groups from decision makers to installers, as well as end-users.

The topics of the designed programmes cover: (a) wind energy prospects; (b) wind resource assessment; (c) wind energy technologies utilization potentials; (d) wind projects site selection, design and specifications; (e) technical evaluation and feasibility analysis of wind projects; (f) wind project implementation; and (g) operation and maintenance of wind systems.

In order to enhance the benefits and the outcome of the programme, the CU has circulated the drafted programme to all ESCWA member countries requesting their feedback on the priorities for implementing the different sub-programmes and assessing their needs and interest in participation. In view of the received responses, the EIS and the NREA of Egypt have reviewed the draft programme and prepared a consolidated training course on wind energy capacity-building reflecting the subjects of interest, with the following basic objectives:

(a) Building and upgrading the capabilities of participating ESCWA member countries in the field of planning, design, execution, operation and maintenance of wind farms of large capacities in a way that enhances local expertise and attracts the private sector to participate in these projects;

(b) Exchange of available expertise in accordance with the required procedures for evaluating the possibilities of contribution of the financing agencies and regional and international companies in the implementation of the mentioned projects and in the provision of the related technical services.

The training programme was held in Cairo during the period 8-20 September 2001, and ten participants have attended it from five ESCWA member countries, namely: Jordan, Lebanon, the Syrian Arab Republic and Yemen, as well as the Palestinian Authority.

The programme was comprised of two sessions—each designed for six days—and was carried out by professionals from both ESCWA and the NREA. In addition to the technical sessions, the programme also included a visit to the largest wind farm in the region—Zafarana wind farm (63 megawatt [MW]).

II. THE SEMINAR ON THE INITIATION OF THE RENEWABLE ENERGY PROMOTION MECHANISM

A. INTRODUCTION

In line with the procedure described earlier for the initiation and activation of the REPM, the CU has organized, within the framework of the Expert Group Meeting on Disseminating Renewable Energy Technologies in ESCWA Member States, an initiation seminar to activate actions for officially launching the REPM.

The REPM initiation seminar was held on 5 October 2000 as a platform for ESCWA, the identified NFPs, and other regional experts to: (a) discuss and review the REPM development status; (b) present the draft (2001-2002) work plan proposed by the CU; (c) endorse the Memorandum of Understanding governing the REPM activities and operational links; and (d) present and review the draft regional renewable energy profile prepared by the CU. Annex III presents the seminar organization of work (4).

The Chief of ENRED, in his opening statement, called upon the participants to support ESCWA's initiative for establishing the REPM as a tool for fostering regional cooperation in the field of renewable energy.

The meeting was attended by: (a) nine REPM NFPs, representatives identified by their respective countries, namely: Egypt, Iraq, Jordan, Lebanon, Oman, Palestinian occupied territories, the Syrian Arab Republic, the United Arab Emirates and Yemen; and (b) national experts from Kuwait, Qatar and Saudi Arabia, representing the competent authorities involved in issues related to renewable energy development.

B. SUMMARY OF EVENTS AND PRESENTATIONS

1. *The REPM development status and plan of work*

The CU presented to the participants a paper on "The ESCWA Renewable Energy Promotion Mechanism: Background, Procedures for Realization, Status and Recommended Actions", describing the procedure followed and the development status for the REPM realization, and presenting a recommended draft for the first two-year plan of work for the mechanism.

(a) *The development status*

The paper elaborated on the intensive consultations performed by the CU with the NFPs on the REPM objectives, organization and realization process. As a result, consensus was reached and, by October 2000, 11 ESCWA member countries have agreed to join the mechanism and identified their NFPs. The coordination unit has also prepared and circulated to ESCWA member countries a framework for developing RE country profiles with a model profile for Egypt. Six country profiles were prepared prior to the seminar, three of them with ESCWA support, while some others were received during the meeting.

(b) *The proposed (2001-2002) REPM plan of work (4)*

The paper also presented the (2001-2002) plan of work proposed by the CU of the mechanism, including: (i) finalizing of the renewable energy profiles; (ii) ensuring the full representation of ESCWA member countries; (iii) identifying the national entities concerned; (iv) developing a regional renewable energy inventory and databases; (v) promoting actions for initiating the proposed programme on dissemination of renewable energy services to the rural areas in the region; and (vi) initiating a new set of activity proposals.

In connection with the discussions of the two-year plan of work, the participants were briefed on the content of the proposed programme on dissemination of renewable energy services to the rural areas in the ESCWA member countries, which targets the removal of barriers facing the dissemination of renewable energy applications in the ESCWA region with emphasis on its impact on achieving rural sustainable

development and improving the quality of life of rural women. The proposed programme includes five main activities to be completed over a five-year period and implemented on a regional level; Yemen was proposed as a case-study. The activities are: (a) a renewable energy assessment study; (b) development of an awareness campaign on renewable energy for sustainable development; (c) renewable energy capacity-building activities; (d) renewable energy market development and promotion; and (e) demonstration of renewable energy systems in rural areas in Yemen.

The meeting's discussions regarding this theme have acknowledged the ESCWA initiative for the establishment of the REPM, and the actions taken for its realization. It also focused on the need for strengthening regional cooperation to further develop renewable energy systems and applications.

2. Endorsement of the REPM Memorandum of Understanding

Prior to the endorsement and signature of the Memorandum of Understanding, the Executive Secretary of ESCWA addressed the participants of the seminar emphasizing the need for fostering regional cooperation on renewable energy as well as energy efficiency based on mutual cooperation and existing capabilities among ESCWA member countries. He also assured the NFPs that ESCWA is devoting efforts towards the realization and activation of the mechanism and called on them to effectively join these activities (4).

Based on the consultation with the NFPs and consensus reached on the final agreed version of the Memorandum of Understanding for the REPM, the Memorandum of Understanding was agreed upon and endorsed by the NFPs during the seminar; where:

(a) Eight ESCWA member countries, namely Egypt, Iraq, Jordan, Lebanon, Oman, the Syrian Arab Republic, the United Arab Emirates and Yemen, endorsed and signed the Memorandum of Understanding;

(b) Bahrain and Kuwait requested to postpone their signature waiting for approval of their concerned legal authorities, while the Palestinian representative, although expressed readiness, was not able to attend the meeting for unforeseen health troubles;

(c) In view of the above, the REPM was declared operative on 5 October 2000.

3. The draft regional renewable energy profile

Based on the available information from the six received country profiles of Egypt (the model profile), Jordan, Palestine, Lebanon, the Syrian Arab Republic and Yemen, the draft regional renewable energy profile was prepared by the CU and presented at the seminar. It included a brief on the development status of the different renewable energy technologies in the region, the institutional framework for its development and potential areas of cooperation. However, the CU as well as the discussions by NFPs have emphasized the need to develop the rest of the country profiles in order to enrich the available information to the CU to facilitate the preparation of the final version of the profile.

4. Country presentations

The representatives of the NFPs of Egypt, Iraq, Jordan and the Syrian Arab Republic have presented their renewable energy country profiles and spotlighted the available capabilities as well as the areas that need support for further development of renewable energy. In addition, representatives of other NFPs have briefed the meeting on their activities. Emphasis was put on the need for capacity-building activities, particularly in the areas of resource assessment, renewable energy projects development, finance and implementation, as well as the need to foster subregional and regional cooperation with ESCWA support.

In addition to the above, a roundtable was held to discuss the proposal for the two-year work programme of the REPM. The outcome of the roundtable discussion was reflected in the recommended work programme and endorsed by the participants of the meeting as mentioned in subsection C below.

C. THE SEMINAR CONCLUSIONS AND RECOMMENDATIONS

At the final session, the representatives of the NFPs of the ESCWA REPM, as well as the regional experts, expressed their acknowledgement of the efforts undertaken by ESCWA for the REPM development and activation. The conclusions and recommendations arrived at during this session included the following:

- (1) In approving the proposed ESCWA two-year work programme of the REPM, recommendations were made that the REPM coordination unit should continue to coordinate with NFPs to: (a) ensure that all country profiles and the regional renewable energy profile be finalized; (b) direct efforts towards identifying the concerned and interested national entities and assess their capabilities or needs; (c) develop a regional inventory of the renewable energy institutions; (d) take action for establishing an ESCWA regional renewable energy database; and (e) promote actions for updating and initiating the proposed project on the dissemination of renewable energy services to the rural areas in ESCWA member countries.
- (2) The NFPs should continue assessing needs in their respective ESCWA member countries and propose to the CU the required support. Upon identification of cooperating and/or contracting parties, the CU has to coordinate efforts to facilitate the implementation.
- (3) The CU, in its capacity as a United Nations body, was urged to direct efforts on the basis of the needs identified by NFPs towards raising possible funds for any of the specified activities, as well as pooling technical expertise to support the implementation of any programme elements.
- (4) The meeting recommended that ESCWA, in coordination with the NFPs, organize regular follow-up meetings for the REPM to discuss prevailing renewable energy issues. Such meetings would be useful for: updating reports on national renewable energy issues and activities; and/or exchange information on available R&D, training and educational programmes.
- (5) An Internet web site should be established for disseminating information on the REPM activities, news and achievements of the national member institutions concerning renewable energy.

The draft recommendations were sent to all participants on 23 October 2000. They were endorsed by the participants, with a request from Iraq and Yemen that more emphasis be given to the activation of the REPM, particularly in the areas of training and information exchange. In addition, Kuwait has requested to direct more efforts for supporting research and development (R&D) activities.

III. THE UPDATED PROPOSAL ON DISSEMINATING RENEWABLE ENERGY SERVICES TO THE RURAL VILLAGES IN ESCWA

A. PROJECT BRIEF

Country: ESCWA member countries, a case-study for Yemen.

Estimated Duration: 4 years (2002 - 2005)

Tentative Funding: Total 1.47 million US dollars

ESCWA contribution:*

RB	165,000	US dollars
XB	90,000	US dollars

Member countries: 220,000 US dollars

End-users: 40,000 US dollars

Other Potential Donors:

GEF/UNFPA/UNIFEM/ILO... etc.: 955,000 US dollars

B. THE DEVELOPMENT PROBLEMS ADDRESSED BY THE PROPOSED PROJECT

1. *The development problem*

The problem addressed by the proposed programme is the acute shortage of energy and water supplies in the rural areas of the ESCWA region, and its implications on the economic and social development, with special emphasis on the development of women.

The total rural population in the ESCWA member countries in the year 2000 counts for about 42.35 per cent (7) of the region's total population, yet the majority of the rural population in the region lack appropriate energy supplies and services. They are dependent on fuel wood, agricultural waste, animal dung; and, in some cases, kerosene and rechargeable batteries are used for limited electric loads. However, few ESCWA members have extended the electricity grids and gas supplies to some parts of their rural communities. This situation naturally leads to very difficult economic, environmental and living conditions in the rural areas of the region, which must be addressed through concerted actions that can improve the situation.

It indicates clearly that the development of rural areas in the ESCWA member countries is an important milestone for the region's social and economic development. Meanwhile, the extension of the infrastructure services, particularly energy supplies, to these areas is a basic need to enable sustainable development, since it will improve the environment, support the development of more economic activities, as well as improve the health conditions and the education possibilities.

2. *The rural energy problem*

The supply of the conventional energy services to the rural areas in the region is difficult and even impossible in many cases, such as in Yemen, while renewable energy (RE) resources are indigenously available. Thus, RE can be a solution for the rural energy problem, taking into account that RE technologies are currently mature and many countries in the region have acquired intensive experience in its technologies and applications.

* ESCWA regular budget (RB) contribution is on the staff working time, finance of EGM and the cost of studies linked to the regular work programme, extra-budgetary (XB) is mainly from ESCWA trust fund.

However, the widespread utilization of renewable energy, particularly in rural areas, is still facing several physical, technical, economic and social acceptance barriers that need to be overcome. Such barriers are linked to a wide range of concerned partners from the decision makers to the end-users. Intensive multidisciplinary efforts are needed to overcome such barriers and to secure the dissemination of renewable energy applications to rural areas in the region.

The proposed project is mainly directed towards increasing the accessibility of rural communities to sustainable renewable energy services to face the challenge of the acute shortage of rural energy supplies. This will be achieved through enhancing national and regional capacity in relevant fields with emphasis on the development and participation of rural women.

C. TARGET BENEFICIARIES

In view of the above-discussed problems of rural development, in general, and the rural energy problem, in particular, the proposed project will benefit the rural and energy community groups at large; however, the particular beneficiaries are:

- (a) The responsible authorities for rural energy planning and supplies;
- (b) Women and female heads of rural households;
- (c) The rural education and health community;
- (d) NGOs that are concerned with rural development and dissemination activities;
- (e) Private sector developers that can promote small RE business enterprises;
- (f) The local and regional environment.

D. PRE-PROJECT AND END-OF-PROJECT STATUS

1. *The pre-project situation*

It is due to the limited or no access to energy supplies in rural areas of ESCWA that rural populations are still suffering from inadequate health care and education services, as well as a shortage of adequate water supplies. This situation naturally leads to very difficult economic, environmental and living conditions in the rural areas of the region, while the region enjoys huge renewable energy resources that can be made available to rural areas if the barriers facing its widespread utilization are removed.

In view of the above, the current pre-project situation is characterized by the following:

- (a) Rural areas in the region are facing an acute challenge of energy and water shortages;
- (b) There is a lack of awareness among local authorities and the rural population on possible RE applications and its useful impact on the community;
- (c) Rural women and children are lacking access to energy and water supplies and, as a result, are suffering from poor health and education services;
- (d) Crucial environmental problems resulting from the use of polluting energy sources;
- (e) Limited interest of private developers and small business in investigating RE technologies.

2. *End-of-project situation*

The project will contribute to the removal of the technical, social and economic barriers facing rural accessibility to energy services, particularly through:

- (a) Increased access of rural areas in the region to appropriate energy supply options, particularly indigenous renewable energy, which in turn will facilitate accessible water supplies;
- (b) Increased awareness among rural populations of possible energy supply options and its social and environmental benefits;

(c) Improved living conditions in rural areas, particularly for women and children, leading to improvement of health and education conditions;

(d) Upgraded capacity of the energy sector in member countries for appropriate planning for incorporating renewable energy resources within the overall energy mix in each member country;

(e) Moving towards better rural health and work environment;

(f) Encouraging the establishment of small industries for job creation and income generation.

E. SPECIAL CONSIDERATIONS

1. *Project impacts*

The project would effectively impact several development areas, including:

(a) *Improving the quality of life*

Laying the ground for increased accessibility to energy services in rural areas will improve health and education services, as well as contribute to better water supplies and sanitation systems.

(b) *Integration of women in development*

The project would give women access to better facilities and living conditions that reduce the current burdens and facilitate means for women to initiate small handcraft industries for income-generation.

(c) *Improving the environment*

The widespread use of renewable energy to replace primitive fossil fuel stoves and lighting lamps used in rural areas will reduce the greenhouse gas (GHG) emissions in these areas and will eventually improve the overall environmental conditions.

(d) *Increased private sector participation*

The awareness campaign to be developed by the project would strengthen the knowledge of the private business community about the expected markets and the possible investment opportunities that will be generated in line with project activities.

(e) *Enhanced job creation opportunities*

The proposed demonstration and training activities on systems installation, operation and maintenance will create opportunities for dealers and installers to work in the field.

2. *Relevance to ESCWA mandate*

The proposed project addresses several development problems that are at the core of ESCWA concerns, particularly its relevance to poverty alleviation, rural women development, and the development of renewable energy. The following highlight the relevance to the ESCWA mandate and its programmes:

(a) The rural development problems have been the subject of several ESCWA activities with particular emphasis on its impact on education, health and the development situation of women. In all cases, the acute shortage of energy and water supplies was identified as one of the key challenges facing rural development;

(b) In the light of the current advanced state-of-the-art RE technologies and the ESCWA mandate to support the promotion of appropriate technologies, the programme of work of EIS/ESCWA during the last

two biennia has assessed the status of renewable energy in the region as of 1997 and evaluated the prospects for its future development. A regional programme for promotion of the renewable energy applications was developed, together with a proposal for the establishment of a renewable energy promotion mechanism (REPM) for fostering subregional and regional cooperation in this field;

(c) Twelve member countries have agreed to join the REPM and have identified their NFPs; nine of them have endorsed the Memorandum of Understanding on 5 October 2000, and have urged ESCWA to activate the REPM operational phase through the implementation of the proposed programme on disseminating renewable energy services to rural villages in ESCWA member countries;

(d) The case of Yemen was identified as a clear example of the subject development problem, and the Yemeni authorities have requested ESCWA's support for the implementation of pilot projects.

F. RELEVANCE TO OTHER DONORS ACTIVE IN THE SAME SUB-SECTOR

1. *United Nations agencies*

The proposed project, although basically targeting the development of renewable energy applications, directly serves the objectives of several United Nations organizations and funding agencies. These include:

(a) *The Global Environmental facility (GEF)*

The programme will contribute to the reduction of greenhouse gases through the reduced dependency on non-commercial and fossil fuels. Meanwhile, the programme satisfies the GEF operational strategy No. 6, "Removing barriers for RE applications."

(b) *The Clean Development Mechanism (CDM)*

The mechanism objectives for promoting technologies that can contribute to GHG reduction are well addressed by the proposed programme.

(c) *United Nations Development Fund for Women (UNIFEM)*

Promoting renewable energy application to rural household and electrification systems can reduce the burden on women, satisfy the required supplies for clinics and schools in a way that can be reflected positively on the healthcare and education services and ensure balanced services for women, men and children. Such benefits coincide with the objectives and mandate of UNIFEM.

(d) *United Nations Population Fund (UNFPA) and the World Health Organization (WHO)*

The proposed programme will achieve a number of objectives that will enhance population development in rural areas. These include better health conditions, capacity-building and income-generation opportunities, and facilitating energy supplies to rural households and schools at the village site. This can result in better healthcare and education services.

(e) *United Nations Industrial Development Organization (UNIDO) and the International Labour Organization (ILO)*

The project will create business opportunities and capacity-building for small- and medium-scale enterprises in addition to small handicraft industries for rural women.

2. *Relevance to the REPM concerned parties*

The project activities, particularly the awareness campaign and the capacity-building activity will be implemented through the ESCWA REPM in full coordination with the NFPs in ESCWA member countries.

It is anticipated that since the proposed activities address essential needs in the ESCWA member countries, they would contribute to the requested funding as appropriate through their NFPs.

G. PROJECT OBJECTIVES

1. *Development objectives*

The core development objective is to face the challenge of acute energy supplies and to enhance development capacity in rural areas of the ESCWA region. This objective is to be realized through increasing accessibility to sustainable energy services using indigenous renewable energy resources and enhancing capacity-building in the field for both public and private concerned partners in the region.

The project objectives will be realized through the removal of the physical, technical and social constraints facing the widespread RE applications, particularly through rallying the support of women's and community groups through demonstration of its field viability.

The project will also help reduce the cost of renewable energy technologies through economies of scale, upgrade the local and regional capacity-building and positively impact the situation of women, the environment and the socio-economic development, particularly in rural areas.

The programme considers all mature and maturing renewable energy technologies as appropriate to the needs of each ESCWA member country; however, emphasis for rural areas will be on two types of renewable energy technologies: photovoltaic and biogas systems to satisfy both the electric and thermal energy needs of the rural villages. It will take advantage of the recent efficient and durability improvements in the solar photovoltaic and biomass technologies. In addition, large-scale renewable technologies will be considered where it represents a solution in specific cases.

2. *Immediate objectives*

The programme has a number of objectives that are addressed both on regional and national levels. On the regional level, the activities will address issues of a regional nature, while on the national level, the activity will address specific relevant issues to the ESCWA member countries; however, it may also serve regional objectives. The rationale is to maximize the benefits of the programme implementation. These include:

- (a) Ensuring gender-sensitive, user-friendly renewable energy applications that are most suitable to the family and female heads of households in the rural areas;
- (b) Enhancing the advocacy and bargaining capacity of women's groups and local NGOs to ensure a stronger sense of involvement in and contribution to improving the health and social conditions of women and female adolescents based on appropriate energy supplies;
- (c) Contributing to the removal of barriers facing the diffusion of environmentally sound renewable energy technologies in the rural areas of the ESCWA member country;
- (d) Assisting governments to develop and adopt policies and practices and build capacities that will be most beneficial to rural energy programmes;
- (e) Developing and implementing a pilot RE demonstration project in a Yemeni village to serve as a field study model for developing the required data and information on aspects that would affect its possible dissemination and the quality of life, particularly the situation of women and its economic and social scheme;
- (f) Identifying NGOs and private sector developers that can promote the required financial and technical arrangements for the RE market entry and promotion;

(g) Developing a financing mechanism for rural RE systems involving the maximum number of local private dealers, installers and maintenance groups;

(h) Providing access to energy services for poor households in Yemen and initiating alternative economic activities based on RE small industries for generating income;

(i) Enhancing public awareness in the region with regard to RE applications and their social and environmental benefits and developing the technical expertise required to evaluate the contribution of RE use to environmental conservation efforts;

(j) Developing the national, subregional and regional capabilities in areas contributing most effectively to rural development and supporting the establishment of small- and medium-size renewable energy industries.

H. MAJOR PROJECT COMPONENTS (ACTIVITIES)

The proposed project plan will include four major activities that address important development needs in rural areas that are linked to the development of renewable energy. Those activities are:

1. *Renewable energy assessment study*

(a) *Objectives*

An assessment study to identify the potential renewable energy applications markets in the rural areas of the ESCWA member countries, with specific emphasis on the case of Yemen, will be conducted over an 18-month period of time. The assessment will classify the most replicable renewable energy application/technology options and assess its market volume in the ESCWA member countries, together with the status of its implementation and proposed possible measures to activate its market dissemination. However, it has to be noted that the EIS/ESCWA has already included parts of this activity in its regular work programme (2002-2003) and will continue including relevant issues in its work programmes.

(b) *Success indicator*

The success indicator will be the consequent finalization of evaluation of studies on the potentials for specific technology/application options, including its impact on the rural population, particularly women.

2. *Development of an awareness campaign on “Renewable Energy for Sustainable Development”*

Taking into account the social and economic conditions of most rural areas in the ESCWA region, a key assumption of the proposal is that those in rural communities who are supposed to make use of alternative RE applications are individuals, mostly women and female heads of households, with little or no literacy skills. Raising their awareness about RE applications and their use would require an intensive and comprehensive outreach programme to enable them to appreciate the replacement technology, develop a positive attitude towards it, digest its use and develop the skills required to ensure maximum utilization and output. To that end, availability and use of RE applications will be brought to bear on relevant social, health and reproductive health themes and on improving the quality of life for the whole community. Special investment will be made in strengthening the advocacy and communication skills of local women's and community groups to ensure ownership and sustainability.

(a) *Objectives*

The proposed campaign will be designed as a continuous process with the objectives of raising the awareness of parties involved in the RE processes for development of rural areas, from decision makers to end-users, particularly rural women. The main focus of the campaign will be the removal of the lack of knowledge barriers facing widespread RE applications in rural areas.

(b) *Implementation mechanism*

The activities to be implemented by the campaign will be coordinated by the REPM and the NFPs in cooperation with the programme partners, ESCWA sister divisions. The objectives of the campaign will be designed and implemented on two levels: (i) on a regional level for subjects and issues that have a regional dimension or for facing barriers that are of a common nature; and (ii) on a national level, at any ESCWA member country, particularly Yemen, if the specific activity is linked to the situation in that country or the issues considered can be better demonstrated in the specific member country.

In this context, ESCWA has already organized an expert group meeting on "Disseminating renewable energy technologies in ESCWA member States," at Beirut, early October 2000, as a forum for exchanging views on how to alleviate the constraints facing the RE dissemination in ESCWA member countries and its positive environmental and social impacts. Also, the REPM initiation seminar was held back-to-back with the expert group meeting, and consensus was reached on the project objectives by the meeting participants and the representatives of the NFPs of the REPM.

(c) *Success indicators*

- (i) The level of interest expressed by ESCWA member countries and NFPs in its objectives;
- (ii) Increased number of participants to the campaign activities;
- (iii) Increased number of women participating in the activities of the campaign.

3. *Capacity-building activities*

(a) *Objectives*

The proposal offers an unmatched opportunity to initiate a comprehensive approach in devising complementary communications addressing gender equity, reproductive health and youth issues while covering RE-related aspects. In addition, some technologies could be revisited based on a structural gender-specific analysis in a way in which alternative RE technologies are developed taking into account women's economic and social conditions and contribution in the villages. The capacity-building activity of the programme, as is the case with the awareness campaign, will be implemented on two levels and will cover the following:

- (a) To support women's and community groups in their advocacy efforts and to equip them with relevant inter-personal communication skills for their outreach activities;
- (b) To initiate a sustainable and cost-effective mechanism for women's and community groups to increase their involvement in identifying and defining their development needs, devising sustainable solutions, and implementing and monitoring community-based activities;
- (c) To assist governments to develop and adopt policies, measures and practices that would foster the penetration of RE technologies in rural areas;
- (d) To support activities targeting the localization of RE technologies, particularly small- and medium-scale industries that can be acquired by rural population and that initiate sustainable economic activities based on it;
- (e) To encourage private sector dealers to participate in the processes and to develop business opportunities for distribution, installation and maintenance;
- (f) In cooperation with donor agencies, this activity can help disseminate information on technological innovation, best practices, training, and demonstration projects. Effective donor support can improve new technologies, project design, evaluation, technical standards and specifications, manufacturing and installation practices, and operation and maintenance.

4. Demonstration of photovoltaic rural electrification in the Yemeni villages

(a) Rationale

An essential need for renewable energy dissemination is to make available field information on the appropriate system designs and system performance under the conditions prevailing in the region, as well as the social and environmental impacts of using renewable energy. All of these needs cannot be effectively satisfied except through field demonstration, testing and evaluation of a typical RE rural energy system.

(b) Objectives

Due to the above and the fact that biogas systems have already been successfully demonstrated in Yemen, this activity of the programme targets the design, procurement, installation, testing and evaluation of a pilot photovoltaic rural electrification project for a typical Yemeni rural village, where the conditions are ideal for applying RE technologies.

(i) Development objectives

- a. To prove the feasibility of the photovoltaic electrification systems for rural villages in Yemen as a model case to be replicated in other ESCWA member countries;
- b. To upgrade health care, education and the situation of women in rural areas as a result of changing the living conditions due to electricity services in rural areas;
- c. To foster the dissemination of renewable energy systems to the rural areas of Yemen.

(ii) Immediate objectives

- a. Assessment of village electrification status and needs in the rural areas of Yemen;
- b. Design, tendering, procurement and implementation of a project of photovoltaic village electrification at Hadran village (120 kilometres from Sana'a);
- c. Training rural people on the operation, maintenance and efficient use of the system;
- d. Assess the social and environmental impact of the project on the rural population and the community as a whole.

The EIS has already visited the project site and developed a preliminary system configuration and cost to be updated and elaborated on project approval.

I. PROJECT SCHEDULE AND BUDGET

1. Project schedule

The overall project duration is anticipated to be four years from the day of approval and fund allocations by concerned and donor agencies. Table 2 shows the proposed overall programme implementation schedule. The first six months are devoted to the project development activities and the project activities are then started sequentially based on fund availability.

TABLE 2. IMPLEMENTATION SCHEDULE FOR THE PROPOSED PROGRAMME ACTIVITIES

Activities	1 st Year 2002				2 nd Year 2003				3 rd Year 2004				4 th Year 2005			
	1-3	4-6	7-9	10-12	1-3	4-6	7-9	10-12	1-3	4-6	7-9	10-12	1-3	4-6	7-9	10-12
1. Programme development and initiation ^{a/}																
2. Renewable energy assessment study ^{b/}																
3. Development of awareness Campaign																
4. Capacity-building activities ^{c/}																
5. RE village electrification pilot plant in Yemen ^{d/}																
6. Progress report, monitoring and evaluation																

The Coordination Unit (CU) of the ESCWA/REPM will follow-up on the project proposals with concerned United Nations organizations.

a/

The Coordination Unit (CU) of the ESCWA/REPM will follow-up on the project proposals with concerned United Nations organizations.

b/

ESCWA/EIS has already finalized parts of the study on "Solar electricity" through its regular (2000-2001) work programme.

c/

The CU has initiated and implemented the first phase of a "Wind energy capacity-building programme" as an additional activity to its (2000-2001) work programme.

d/

The CU has initiated and implemented the first phase of a "Wind energy capacity-building programme" as an additional activity to its (2000-2001) work programme.

2. Project budget

Each of the four major proposed activities of the overall project programme can be financed and implemented separately; however, it would be more effective and less expensive to integrate the implementation of such activities since there are many inter-related and inter-dependent issues among the four activities. Table 3 summarizes the project's required inputs, and the proposed distribution between the potential partners.

TABLE 3. PROJECT BUDGET DISTRIBUTION

Activities	Total budget	Budget distribution in thousands of US\$				
		ESCWA ^{a/}		Other donors	Member country	End-users
		RB	XB			
1. Programme development and initiation	40	5.0	10.0	25	-	-
2. Renewable energy assessment study	100	40	10.0	50	-	-
3. Development of an awareness campaign	400	60.0	20	260	60	-
4. Capacity-building activities	550	30.0	20.0	400	100	-
5. RE village electrification pilot plant in Yemen	280	20.0	20.0	160	40	40
6. Monitoring and evaluation	100	10.0	10.0	60	20	-
Total	1470	165	90.0	495	220	40

^{a/} ESCWA regular budget (RB) contribution is on the staff working time and financing of the expert group meeting and studies linked to its programme of work.

Notes: XB = extrabudgetary.

The total budget of the programme reaches US \$1.47 million distributed as shown in the above summary.

IV. SUMMARY AND RECOMMENDATIONS

In 1997, the ESCWA Secretariat prepared a proposal for the creation of a Renewable Energy Promotion Mechanism (REPM) in the ESCWA region to foster regional cooperation by coordinating the available expertise and renewable energy resources for the mutual benefit of the ESCWA member countries. The proposal was positively received by the ESCWA member countries and, as of 1999, 10 ESCWA members have agreed to participate in the REPM and have nominated their national focal points (NFPs).

Furthermore, the EIS has included in its (2000-2001) work programme an operational activity for developing a regional approach for disseminating renewable energy technologies, with the core objective of promoting actions towards the initiation and activation of the mechanism. The following summarizes the progress achieved as of September 2001 and the recommendations for future development.

A. SUMMARY OF PROGRESS ACHIEVED

The efforts devoted by ESCWA in coordination with the NFPs for realizing the objectives of the operational activities have led to the establishment of the REPM and launching its activities as of 5 October 2000. Meanwhile, the CU has taken several actions to activate the mechanism and start the implementation of its first two-year (2001-2002) work programme. The main achievements during the biennium 2000-2001 and the current development status are summarized below.

1. *REPM establishment and operational start*

(a) *The REPM membership.* As of late 2000, 12 ESCWA member countries have joined the REPM and have nominated their respective NFPs (listed in table 1 of this report);

(b) *The REPM initiation seminar* was held on 5 October 2000 as a platform for ESCWA, the identified NFPs, and other regional experts. The meeting was attended by: (a) nine REPM NFPs—representatives of Egypt, Iraq, Jordan, Lebanon, Oman, Palestinian occupied territories, the Syrian Arab Republic, the United Arab Emirates and Yemen; and (b) national experts from Kuwait, Qatar and Saudi Arabia;

(c) *Endorsing the Memorandum of Understanding.* Based on consultations with the NFPs and consensus reached on the final agreed version of the Memorandum of Understanding for the REPM prepared by the CU, the Memorandum was agreed upon and endorsed by the NFPs during the seminar where:

(i) Eight ESCWA member countries, namely Egypt, Iraq, Jordan, Lebanon, Oman, the Syrian Arab Republic, the United Arab Emirates and Yemen, endorsed and signed the Memorandum of Understanding;

(ii) Bahrain, Kuwait and the Palestinian Authority requested to postpone their signatures waiting for approval from their legal concerned authorities;

(iii) In view of the above, the REPM was declared operative on 5 October 2000.

(d) *The (2001-2001) work programme of the REPM* proposed by the CU was endorsed by the NFPs, who recommended that the REPM CU should continue to coordinate with NFPs to: (i) ensure that all country profiles and the regional renewable energy profile be finalized; (ii) direct efforts towards identifying the concerned and interested national entities and assess their capabilities or needs; (iii) develop a regional inventory of the renewable energy institutions; (iv) take action for establishing an ESCWA regional renewable energy database; and (v) promote actions for updating and initiating the proposed project on the dissemination of renewable energy services to the rural areas in ESCWA member countries;

(e) *Other seminar recommendations.* The participants have also recommended that:

(i) The NFPs should continue assessing the needs in their respective countries and propose to the CU the required support; the CU has to coordinate efforts to facilitate the implementation;

- (ii) The CU, through the capacity of ESCWA as a United Nations body, was urged to direct efforts on the basis of the needs identified by NFPs towards raising possible funds for any of the specified activities, as well as pooling technical expertise to support the implementation of any programme elements;
- (iii) The meeting recommended that ESCWA, in coordination with the NFPs, organize regular follow-up meetings for the REPM in order to discuss prevailing renewable energy issues, to update reports on national renewable energy issues and activities, and/or exchange information on available R&D, training and educational programmes;
- (iv) An Internet web site should be established for disseminating information on the REPM activities, news and achievements of the national member institutions concerning renewable energy.

2. Progress achieved in implementing the (2001-2002) REPM work programme

Within the framework of ESCWA efforts to activate the REPM and implement its endorsed work programme, the following have been achieved:

(a) *Renewable energy country profiles.* By September 2000, prior to the REPM initiation seminar, the country profiles of Egypt, Jordan, Lebanon, the Palestinian Authority, the Syrian Arab Republic and Yemen were completed and received by the CU. In addition, draft reports for Oman and the United Arab Emirates were received, and country reports of other ESCWA member countries have not yet been made available to the CU. The country profile of Kuwait was received in mid-September 2001. All received country profiles and relevant papers presented in meetings were subject to careful review and assessment by the CU in preparation for the regional profile.

(b) *The regional renewable energy profile (RREP).* The final version of the RREP, which is being presented in volume I of this activity report, was finalized early September 2001 incorporating seven chapters and an Arabic summary. The first chapter overviews the links between the status of the energy sector and the main demographic and economic features that justify the need for disseminating RE technologies in the region, and discusses their impact. Chapter II assesses the current status of RE institutional frameworks in ESCWA member countries. Chapters III to VI describe the status and future prospects of the four main RE technologies that have promising potentials in the region, namely solar thermal, photovoltaic, wind and biomass. Finally, chapter VII discusses the existing and potential RE cooperation and coordination programmes in the region.

The regional profile has identified a set of potential areas for regional cooperation, where ESCWA member countries can exchange their expertise and mutual capabilities for enhancing renewable energy contribution to the economic and social development in the region. Those areas include: (a) renewable energy assessment; (b) assessment and planning studies; (c) institutional strengthening; (d) project design and implementation; (e) supporting technology transfer and possible local manufacture; and (f) information, education and training. Since these areas address only a framework for the potential cooperation among ESCWA member countries, ESCWA will continue coordinating with NFPs to identify the specific needs of each country.

The final version of the RREP will be distributed to ESCWA member countries, NFPs, and members of the ESCWA Committee on Energy. It will also be periodically updated and published on the ESCWA web site (www.escwa.org.lb).

(c) *The updated project proposal on disseminating renewable energy services to rural villages of ESCWA member countries.* In implementing the NFPs recommendations for the REPM's first two-year programme, the CU has conducted preliminary consultations with different agencies on the project objectives and possibilities for financing its activities. Several modifications were introduced to the draft proposal so as to satisfy the requirements for funding by donor agencies, and to reflect more clearly the issues relevant to the development of women, improving the quality of life in rural areas, and the project

environmental impact. In addition, the project proposal format was modified to match the framework for United Nations project proposal preparation.

Given the importance of the capacity-building activity addressed by the proposal, the CU has initiated contacts with UNESCO to explore their possible contribution to the implementation of the planned capacity-building and the awareness campaign activities. UNESCO has acknowledged the ESCWA initiative and has agreed to contribute to such activities.

(d) *Additionally implemented activities.* To activate the operational start of the REPM and in response to the recommendations of the NFPs during the initiation seminar, the CU has taken actions to organize and implement the following:

- (i) *The first REPM annual follow-up meeting* to be held in October 2001 within the framework of the third session of the Committee on Energy to discuss the progress made in the initiation and activation of the REPM, the wind energy capacity-building programme, and exchange information on the activities of ESCWA member countries. In addition, the meeting will recommend the REPM activities to be carried into the period 2002-2003;
- (ii) *The wind energy capacity-building programme.* Upon request from the Jordanian Ministry of Energy and Mineral Resources, the EIS in coordination with the New and Renewable Energy Authority (NREA) of Egypt have designed an intensive programme for capacity-building in the area of wind energy. The programme incorporates seven sub-programmes covering the areas that concern different targeted groups from decision makers to installers, as well as end-users;

The training programme was held in Cairo during the period 8-20 September 2001, and ten participants attended from five ESCWA member countries, namely Jordan, Lebanon, the Palestinian Authority, the Syrian Arab Republic and Yemen. The programme was comprised of two sessions, each designed for six days, and was carried out by professionals from both ESCWA and the NREA. In addition to the technical sessions, the programme also included a visit to the largest wind farm in the region, Zafarana wind farm (63 MW).

B. RECOMMENDATIONS

In view of the progress achieved and the planned REPM activities for the period 2001-2002, it is recommended that the CU, during the period 2002-2003 coordinates with NFPs the following:

1. To activate the establishment of a database and an Internet web site on renewable energy for disseminating information on the REPM activities, news and achievements of the national member institutions concerning renewable energy.
2. The NFPs should continue assessing the needs of their respective member countries and propose to the CU the required support. Upon identification of cooperating and/or contracting parties, the CU has to coordinate efforts to facilitate the implementation.
3. The CU, on the basis of the needs identified by NFPs, should direct efforts towards raising possible funds for any of the specified activities as well as pooling technical expertise to support the implementation of any programme elements.
4. To direct efforts towards implementing the proposed project on disseminating renewable energy services to rural village in ESCWA member countries.
5. To design, organize and implement specialized programmes on renewable energy capacity-building with emphasis on developing local small and medium industries.
6. The CU should initiate and/or activate contacts with other United Nations agencies to activate awareness campaigns on renewable energy.
7. The ESCWA/EIS should continue assessing and evaluating potentials for renewable energy applications in the region, as well as formulating subregional and regional programmes and/or mutual services based on such findings to enhance the ESCWA region's capacity in the field of renewable energy.

END NOTES

1. Promotion of new and renewable sources of energy, with particular emphasis on rural and remote areas. E/ESCWA/ENR/1999/24, New York. 1999.
2. The ESCWA Renewable Energy Promotion Mechanism: Background, Procedures for realization, Status and Recommended Actions. E/ESCWA/ENR/2000/WG.2/19, 2 October 2000.
3. United Nations, Economic and Social Commission for Western Asia. Regional approach for disseminating renewable energy technologies, vol. I: The regional renewable energy profile.
4. United Nations, Economic and Social Commission for Western Asia. Report on "Expert Group Meeting on Disseminating Renewable Energy Technologies in ESCWA Member States," Beirut, 2-5 October 2000 (E/ESCWA/ENR/2001/2).
5. United Nations, Economic and Social Commission for Western Asia and the NREA. Project proposal for a "Training programme in wind energy", within the "Programme for national capacity-building in the field of renewable energy" (in Arabic), April 2001.
6. United Nations, Economic and Social Commission for Western Asia and the NREA. "Training programme in wind energy" (in Arabic), the final programme. August 2001.
7. United Nations, Department of Economic and Social Affairs, Population Division, United Nations publication (ST/ESA/SER.A/185), 1999.

ANNEXES

Annex I

POTENTIAL AREAS FOR REGIONAL COOPERATION ON RENEWABLE ENERGY (3)

As mentioned earlier, most of the activities in renewable energy (RE) in the ESCWA region were through the bilateral cooperation programmes with developed countries. Cooperation among the countries in the region was very limited. It has become clear that certain countries in the region have acquired intensive experience in various RE fields, and have been recognized by their active participation in RE technological development, and by their capable national institutions.

It is, therefore, essential to promote cooperation among the member countries of the ESCWA region in order to diffuse the experience accumulated in certain countries, and promote those RE technologies that are approaching the state of maturity and can be commercially competitive. As such, the prospect for regional development should be based on the needs identified by some countries and by the services that other countries can offer based on their inherent capabilities.

To this end, it is clear that fostering regional cooperation in the field of RE among the ESCWA member countries is a vital requirement to enable them to utilize effectively their mutual resources and capabilities, and streamline them for achieving a more sustainable energy sector.

The assessment given in the regional renewable energy profile, the renewable energy expertise accumulated in the region and the needs for support that have been identified by the ESCWA member countries in their national profiles have been reviewed and analysed. As a result, the following are potential areas for regional cooperation in the field, where ESCWA member countries can exchange their expertise and enhance their mutual capabilities for enhancing RE contribution to the economic and social development in the region.

It has to be noted that the areas of potential regional cooperation described hereinafter are just addressing a framework for the potential cooperation among ESCWA member countries and specific activities have to be identified on the basis of practical needs and available capabilities in the region. The CU of the ESCWA REPM will continue coordinating with NFPs for identifying such specific needs and formulating subregional and regional programmes and/or mutual services based on it to enhance the region's capacity in the field of renewable energy.

A. RENEWABLE ENERGY RESOURCE ASSESSMENT

Appropriate and accurate resource data are essential for evaluation of the potentials of RE technologies and applications. There is a need in many ESCWA member countries for training and technical support for building capacity on resource assessment areas, particularly for solar, wind and biomass resources. This would include: setting activities, selection and specification of measuring equipment, site characteristics, development of measuring schemes, analysis of data and preparation of solar and wind atlases, as well as biomass resource assessment reports.

B. ASSESSMENT AND PLANNING STUDIES

There is a need in the majority of countries in the region for support in the development of strategies and plans for RE and ranking of priorities for implementation in line with the prevailing conditions in the concerned ESCWA member countries, as well as developing policy guidelines for integrating RE into national development plans. Support can be facilitated through the REPM/CU and countries of concern.

C. INSTITUTIONAL STRENGTHENING

Services including support for the development of renewable energy institutional structures, policy measures for renewable energy promotion as well as human resource development are needed either to strengthen existing bodies or to support the establishment of new renewable energy specialized institutions.

D. PROJECT DESIGN AND IMPLEMENTATION

Support is needed on project identification, design and implementation of different technology/application options as appropriate to the needs and available resources in the concerned ESCWA member countries, and the expertise acquired by the serving ESCWA member country. This would include:

- (a) Project site selection and qualifications;
- (b) Identification and evaluation of the appropriate application/technology option;
- (c) Preparation of the project's conceptual design, and tender documents;
- (d) Financing procedures and institutions;
- (e) Evaluation of proposals and contractual procedures;
- (f) Support to the implementation, inspection and operation of the project.

E. SUPPORTING TECHNOLOGY TRANSFER AND POSSIBLE LOCAL MANUFACTURE

Based on accumulated experience particularly in the fields of DSWH and wind turbines manufacture, Egypt has the capacity to support other ESCWA member countries in negotiating RE technology transfer agreements, particularly for technology selection and building the industrial capabilities.

F. INFORMATION, EDUCATION AND TRAINING

Several institutions in ESCWA member countries have already implemented several educational and training programmes at all levels serving different RE aspects. Specific programmes (classroom or field programmes) can be tailored to the needs of other ESCWA member countries according to their specific needs.

Annex II

MEMORANDUM OF UNDERSTANDING ON ESTABLISHMENT AND ACTIVATION OF THE RENEWABLE ENERGY PROMOTION MECHANISM (REPM) IN THE ESCWA REGION

Beirut, October 2000

INTRODUCTION

The ESCWA region enjoys tremendous renewable energy (RE) resources. Several member States (MS) have acquired intensive experience in the different RE fields, while some of them have been recognized as active participants to the technological development of RE equipment, as well as having capable national institutions, whereas the experience of others has been limited to minor initiatives that were not met with sufficient success

In view of the above, it became essential to promote cooperation between the ESCWA member countries in such vital fields, specially based on environmentally sound technologies, that are approaching the state of maturity and need to be pushed to the market-place on a commercial scale.

However, the realization of an effective cooperation among the ESCWA MS has been faced by the absence of appropriate coordination or promotion mechanisms that can utilize the existing resources and capabilities to the mutual benefit of MS. It is due to such background that ESCWA has prepared a project proposal for the creation of a renewable energy promotion mechanism (REPM) in the ESCWA region as a tool for enhancing the regional and subregional cooperation in the field of RE (annex I).

In order to investigate the views of the ESCWA member countries regarding the concept, objective and membership of the mechanism, the ESCWA Secretariat has forwarded the proposal to all member States and conducted consultations with the concerned national authorities on the subject to reach consensus among them regarding the joining to the mechanism,

In conclusion, as of October 2000, 11 ESCWA member countries have agreed to join the mechanism and nominated concerned national authorities to represent them as national focal points (NFPs) in the mechanism. Therefore, this memorandum of understanding among the NFPs is issued to set the objective of the mechanism and the responsibility of each party. Its endorsement by each NFP would imply the respective ESCWA member country's commitment to the mechanism objectives and implementation procedures.

Article I

Definitions

As given by the project proposal in annex I, the abbreviations used in this document shall mean:

- "CSA" the Central Supporting Agency "UN-ESCWA"
- "CU" the Coordinating Unit "ENRED/ESCWA"
- "NFPs" the National Focal Points "as identified in article III below"
- "NE's" the National Entities

Article II

Objectives of the mechanism

The objective of the REPM is to enhance regional and subregional cooperation among ESCWA-MS for the promotion of environmentally sound Renewable Energy Technologies "RET" to contribute to the economic development of the member States, based on the tremendous resources available and the capabilities built within the countries and that of UN-ESCWA expertise and coordination links to the international agencies.

Article III

Establishment of the Mechanism

The establishment of the REPM will be considered endorsed and effective at the date that at least six of the NFPs complete signature and endorsement of this Memorandum of Understanding and in accordance with its provisions.

Article IV

Organizational setup and coordination linkages

The cooperating parties', CU and NFPs agree that the REPM set-up described in part D of the attached proposal will be established to carry out the functions of the mechanism. They also agree that:

(a) Member countries who agreed to join the mechanism will be represented by the National Focal Points (listed hereinafter as NFPs) as nominated by their respective countries;

(b) Should a member country replace its nominated NFP, the CSA should be notified to that effect 15 days from the effective date of the new assignment;

(c) ENRED of UN-ESCWA will act as a CU for the REPM supported by UN-ESCWA;

(d) Upon recommendation of the concerned NFPs, national entities (NEs) can be associated with the mechanism.

Country	National focal point
State of Bahrain	Ministry of Electricity and Water
Arab Republic of Egypt	New and Renewable Energy Authority
Republic of Iraq	National Committee for Technology Transfer
The Hashemite Kingdom of Jordan	National Energy Research Center
State of Kuwait	Ministry of Electricity and Water
Republic of Lebanon	Electricité du Liban
Sultanate of Oman	Sultan Qaboos University
Palestinian Authority	Palestinian Energy Authority
Syrian Arab Republic	Ministry of Electricity
United Arab Emirates	Ministry of Electricity and Water
Republic of Yemen	Ministry of Electricity and Water

Article V

Obligations and coordination procedures

The obligations of the REPM partners and coordination procedures will be set up in accordance with parts D and E of the attached proposal and the consensus of the NFPs on any new issues to be identified during the operational phase of the mechanism.

Article VI

Objectives and functions of the REPM bodies

The functions of the REPM bodies, namely the CU, the NFPs and the NEs, will be as stated by part D of the attached proposal.

Article VII

Membership and accession to the mechanism

1. The nominated focal points are eligible to be members in the mechanism. Should the government change the nomination, the newly appointed focal point will automatically replace the current one in all its obligations.
2. Countries shall join the mechanism when their designated NFPs sign this Memorandum of Understanding, which shall be deposited with the CU.
3. The CU shall keep a register of all such instruments of accession and shall keep other member countries informed of every new accession to the mechanism.

Article VIII

Coming into force, validation, amendment and termination

1. This operational mechanism of cooperation shall come into force on: 5 October 2000.
2. After two years of its operations, the CU together with the NFPs shall assess the status of the mechanism and shall issue a report to the Committee on Energy at ESCWA, outlining the results achieved, and the institutional changes required to improve the mechanism operations.

Done in Beirut on 5 October 2000 in two originals: one in English and one in Arabic.*

In witness whereof the undersigned, being duly authorized to do so by their respective governments, have signed this document for establishing the “Renewable Energy Promotion Mechanism.”

* In case of divergence in interpretation of one of the texts of this operational mechanism of cooperation, the Arabic text shall prevail.

Annex III

ORGANIZATION OF WORK* OF THE SEMINAR ON THE INITIATION OF THE RENEWABLE ENERGY PROMOTION MECHANISM (REPM)

Thursday, 5 October 2000

Chairman:	Mr. Omar Touqan
Co-chairman:	Representative of Iraq
8:30 – 9:30	Welcoming speech by Mr. Omar Touqan, Chief, ENRED
8:45 – 9:30	The ESCWA Renewable Energy Promotion Mechanism: Background, Procedures for realization, Status and Recommended Actions, Ms. Anhar Hegazi, ESCWA.
9:30 – 9:45	Welcoming address, Dr. Hazem El-Beblawi, Executive Secretary of ESCWA
9:45 – 10:15	Endorsement of the REPM Memorandum of Understanding by the representatives of the “REPM” National Focal Points
10:15 – 11:00	Coffee break
11:00 – 11:30	Presentation of the draft Regional Renewable Energy, Ms. Anhar Hegazi, ESCWA
11:30 – 13:00	Presentations of Country Profiles by the representatives of the National Focal Points of the member countries
13:00 – 14:00	Lunch break
14:00 – 15:30	Roundtable on “The proposed REPM two-year work programme”
15:30 – 16:00	Conclusions and recommendations
16:00 – 16:30	Closing session

* The organization of work is presented as adopted by the meeting.