



United Nations  
Educational, Scientific and  
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Man and  
the biosphere  
Programme



Federal Ministry for the  
Environment, Nature Conservation  
and Nuclear Safety



United Nations  
Educational, Scientific and  
Cultural Organization

German Commission  
for UNESCO

Para la vida, para el futuro

# For life, for the future

Biosphere reserves and climate change

## Conference Proceedings including the Dresden Declaration

Pour la vie, pour l'avenir

Für das Leben, für die Zukunft



Edited by the German Commission for UNESCO



Para la vida, para el futuro

**For life, for the future**  
**Biosphere reserves and climate change**  
**Conference Proceedings**  
**including the Dresden Declaration**

Dresden, Germany  
27 and 28 June 2011

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**For life, for the future. Biosphere reserves and climate change**

Conference Proceedings including the Dresden Declaration

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# Message of Greeting

## Martin Waldhausen

Germany has been very proud to host the 40<sup>th</sup> anniversary conference of the programme “Man and the Biosphere” (MAB) of UNESCO in June 2011 in Dresden.

My country has been committed to the MAB Programme from the outset in 1971 – and even before. Already in the mid-1960ies, the German government in conjunction with eminent German experts pushed for a UNESCO programme seeking to address emerging ecological problems. Already back then, many experts knew that mankind can only flourish in a healthy environment and that in order to keep ecosystems healthy, human activities must adapt. UNESCO was visionary in transforming this knowledge into a concrete programme – the MAB Programme.

The world has changed since 1971. The world’s population has almost doubled and hardly anybody doubts anymore that we are massively over-exploiting our natural resources. Biodiversity is lost at an alarming rate; ecosystems lose their functionality; soils lose their productivity; deserts are encroaching. Anthropogenic climate change comes on top of all these challenges, compounding their impact and with particularly disastrous consequences in the case of inaction.

We need to act fast and decisively to counter both challenges, biodiversity



loss and climate change. The European Union has agreed on severe cuts in GHG emissions with the offer of further cuts, if other countries join our efforts. Germany leads by example with one of the most severe cuts worldwide in emissions since 1990 and an ambitious national agenda well underway. How do we implement our agenda? Germany has understood that nuclear energy implies far more threats than benefits; this is why the German government has decided in 2011 to implement an exit strategy without historic parallels. We will heavily invest in energy efficiency and renewable energies instead. We also believe that these efforts will provide a comparative advantage on the world market.

A fast emissions reductions strategy not only has costs, but also potential unwanted side effects. While investing

fast, we also have to act wisely and sensitively to sites and local conditions. We already have considerable experiences, such as minimizing impact of wind energy on birds or bats. However, much more needs to be discovered on how we can reconcile ambitious measures of climate change mitigation and adaptation with other challenges to sustainable development. In the end, sustainable development is much more than reducing GHG emissions to long-term acceptable measures.

This is where UNESCO biosphere reserves come into play. As “model regions for sustainable development” they have successfully defined many recipes on safeguarding livelihoods in rural communities, on combining sustainable economies with biodiversity conservation, on coping with demographic change. Now, 40 years after the foundation of MAB, climate change clearly is another challenge that has to be addressed, with priority, in and by biosphere reserves. The Madrid Action Plan has stated this clearly. A recent survey has shown many impressive examples from current climate change action taken in biosphere reserves in Costa Rica, in Spain, in Korea, in Germany and many other countries. The Dresden Declaration which has been passed by the participants of the anniversary conference in June 2011 states clearly what has to be done next. We are looking forward to the endorsement of this declaration by the UNESCO General Conference in November. There



still is a lot to be done, in Germany and around the world.

Germany will remain committed to using the UNESCO biosphere reserves and the MAB programme as ideal instruments to act on climate change.

In closing, I would like to thank the Director General of UNESCO and the global MAB community for having accepted the invitation to come to Dresden. I thank every individual around the world who has contributed during the last 40 years to making the MAB Programme the firm success it is today. Together, through close cooperation within the global MAB community we will continue to build on this success. On behalf of the German government, let me emphasize that I am looking forward to further and even improved cooperation within the UNESCO MAB Programme.

Martin Waldhausen is chairman of the German MAB national committee

# Message of Greeting

## Natarajan Ishwaran

The UNESCO Programme “Man and the Biosphere”(MAB) has been exploring ways of interaction of human beings and nature for 40 years now. We have celebrated this anniversary in Dresden, Germany, in June 2011, with a forward-looking and stimulating conference discussing the role of the MAB Programme in times of climate change.

The MAB Programme’s global network of representative model regions for sustainable development, the UNESCO biosphere reserves, contribute key practical experience for the world’s grand challenges of today. The achievements and potential of biosphere reserves with regard to climate change were highlighted and intensely discussed in the conference “For life, for the future. Biosphere reserves and climate change” on 27 and 28 June 2011 in Dresden. Some 300 experts from 74 countries – high-level representatives from international climate change and nature conservation policy, experts from scientific research, from nature conservation and practice – have also discussed the “Dresden Declaration on biosphere reserves and climate change”, an appeal to politicians to better use the experience of biosphere reserves for climate change mitigation and adaptation.



The conference participants have adopted the “Dresden Declaration”; afterwards it has been endorsed by the MAB International Co-ordinating Council (ICC). Actually it was the 40<sup>th</sup> anniversary and the 23<sup>rd</sup> session of this highest decision-making body of the MAB Programme which brought us to Dresden. The 23<sup>rd</sup> MAB ICC session took place at the same location immediately after the above-mentioned conference. It has resulted inter alia in the approval of revised statutes for the MAB Programme and the designation of 18 new UNESCO biosphere reserves, bringing their overall number to 580. This figure is also impressive taking into account that now 114 countries have UNESCO biosphere reserves; Lithuania, the Maldives, Saint Kitts and Nevis, and Togo have had their



first member of the World Network designated in Dresden.

Dresden also saw a new partnership agreed between biosphere reserves in South Korea and Spain; there was a week-long workshop for African managers of biosphere reserves hosted by the German authorities; all ICC delegates visited the UNESCO biosphere reserve Heath and Pond Landscape of Upper Lusatia; there have been many visits to other German biosphere reserves along the side-lines of the conference; and a new partnership has been announced of German biosphere reserves and Honda. Thanks to the Spanish government we could present for the first time a book containing presentations of the biosphere reserves worldwide. Several new films on biosphere reserves were screened; the German partners presented a publication and an exhibition on best practice case studies on climate change from the world over.

In November 2011, Germany will submit a draft resolution to the UNESCO General Conference seeking an endorsement of the “Dresden Declaration”. At this 36<sup>th</sup> General Conference, Member States will also discuss, as the ICC did in Dresden, in what form we will evaluate the Madrid Action Plan towards its end in 2013 and what will follow afterwards.

This publication gives a résumé of the Dresden conference discussions in



English language and a short summary in English, French, Spanish and German which were the four conference languages. Moreover, you find the “Dresden Declaration” on the centre pages in the six languages of the United Nations, and also in German.

Let us thus, using the spirit of Dresden, further increase and also synergize our efforts to make UNESCO biosphere reserves the most important sites for climate change action worldwide; they are so well suited because they also take into account all other requirements of human beings and nature – sustainable development is a multi-dimensional challenge. We are prepared for it.

Dr Natarajan Ishwaran is the secretary of the UNESCO MAB Programme and the director of UNESCO’s Division of Ecological and Earth Sciences



From left to right: Ursula Heinen-Esser, Luis Fueyo Mac Donald, Irina Bokova, Arnd Henze, Mohamed Aslam, Dessie Dalkie Dukamo, Natarajan Ishwaran

## Summary: The role of UNESCO biosphere reserves in addressing climate change

The conference „For life, for the future” discussed the role of UNESCO biosphere reserves in implementing and advancing climate change policies. It concluded with an appeal to better use the experience of biosphere reserves for climate change action. In the outcome document, the „Dresden Declaration“, the participants called for a closer link between climate change mitigation and adaptation, poverty alleviation and the conservation of biological diversity.

The conference took place on the backdrop of multilateral climate change negotiations which make slower progress than what almost all experts are calling for. At the same time, there

is quite universal agreement about the scientific basis: Failure to urgently decrease greenhouse gas (GHG) emissions to long-term sustainable levels will lead to incalculable and disastrous consequences for the poorest of the poor and will deprive future generations of quality of life.

Our societies need to rapidly develop new, less-polluting lifestyles and in particular they need to implement new sources of energy fast. At the same time, it is indispensable that such fundamental reforms in society and economy have democratic legitimacy and ownership by the population concerned. There is an urgent necessity to experiment with new lifestyles

and economic models under real life conditions; such models cannot be decided top-down by the government. The conference asserted that UNESCO biosphere reserves are perfect real-life “laboratories” for low-carbon sustainable development, framed by participatory forms of governance.

In addition to safeguarding the interests of human beings, there is a clear need to tailor measures of climate



Ivo Mulder, Doris Pokorny and Ute Stoltenberg

change mitigation to the already over-stretched ecosystem functions and to the rapid loss of biodiversity. The Dresden Declaration warns that mankind must not only focus on reducing GHG emissions, without taking into account that ecosystems need to perform many other functions for us as well, e.g. provision of fresh water. Otherwise, climate change mitigation might create even more problems than it will fix.

One of the main insights of the conference is the importance of biosphere reserves as frameworks to negotiate conflicts of interest. Mitigating climate change and expanding renewable energies necessarily lead to conflicts. In many countries of the South and the North, large areas are already being converted into high-tech monocultures for cultivating biofuels. However, because of the growing world population, we need this land for growing food. At the same time, thoughtless production of biofuels destroys valuable ecosystems and reduces biodiversity. Frequently, new power lines or wind turbines meet opposition. We will have to resolve these conflicts – and so can we. UNESCO biosphere reserves are ideal places for finding solutions to such conflicts in a pilot manner, involving all relevant stakeholders, and communicating successful approaches to the world network.

Finally, anthropogenic climate change has started many decades ago and its speed is increasing every year. We have to quickly define adaptation strategies for every country, province and district. UNESCO biosphere reserves are ideal places for research on climate change impacts and to test comprehensive adaptation strategies across sectors.

*A brochure published for the Dresden Conference presents 28 good practice case studies on how biosphere reserves successfully tackle climate change. The brochure can be downloaded as PDF (9 MB) from [bit.ly/j5CoXx](http://bit.ly/j5CoXx).*

**Key statements on the significance of biosphere reserves in the context of climate change from the conference participants:**

- *We must integrate poverty alleviation, sustainable development and conservation from the outset. To people living in the region, it is obvious that these three pillars go hand in hand. In order to remain convinced under changing circumstances, the biosphere reserve concept is ideal. But the local people have to have a clear benefit from the biosphere reserve.* (Dessie Dalkie Dukamo, Minister for Science and Technology of Ethiopia)
- *For us, the biosphere reserve is an economic case, not just conservation but sustainable economic development. People must understand and feel their benefit. The era of forbiddance is over!* (Mohamed Aslam, Minister for Housing, Transportation and Environment of the Maldives)
- *People living in biosphere reserves have already fully understood that conserving their ecosystems and their natural resources is also key to fighting climate change. They would be rather surprised to learn that at the political level, there are disjoint discourses.* (Luis Fueyo Mac Donald, Head of the Mexican National Commission of Natural Protected Areas)
- *Biosphere reserves do not only add an economic dimension to the conservation of nature; they also include a social and cultural dimension; good human life is at the heart of the concept.* (Ute Stoltenberg, German MAB committee)
- *Experience shows that the concept of sustainable development is too abstract for people, so they do not feel responsible. The biosphere reserve concept emphasizes that 'I am part of the life support system, so I have the responsibility to protect it'.* (Sheila Ashong, Environmental Protection Agency of Ghana)
- *On climate change, we need much more awareness at the political level, but at the same time many different and differentiated initiatives at the local level. Supporting this double thrust, the*



Dessie Dalkie Dukamo

*world network of biosphere reserves can provide many examples for concrete action.* (Beate Jessel, President of the German Federal Agency for Nature Conservation)

- *Biosphere reserves may develop new mechanisms for mitigating climate change like carbon markets and innovative financing mechanisms to fight against the consequences of deforestation and forest degradation in developing countries.* (Irina Bokova, UNESCO Director-General)
- *Since we do not have the solution for climate change today, we must find solutions in practice; for this we should use the biosphere reserves.* (Natara-  
jan Ishwaran, UNESCO MAB Secretary)
- *The biosphere reserves have been successful in demonstrating especially one thing over the last 40 years: how to assemble all relevant actors around a table and build consensus for sustainability – and to find solutions and ways of transformation not only on a national but on a global level.* (Stanislaw Tillich, Prime Minister of Saxony)
- *Biosphere reserves tend to address conflicts head-on instead of sweeping them under the carpet; thus enabling the consensual, exemplary development of solutions.* (Beate Jessel, President

of the German Federal Agency for Nature Conservation)

- *Between different human beings, there will always be conflicts of interests; a special competence of UNESCO biosphere reserves consists in managing and negotiating such conflicts.* (Natara-  
jan Ishwaran, UNESCO MAB Secretary)
- *Meaningful conflict management is important. But exactly this – to look into forms of good governance – is tested very successfully in biosphere reserves.* (Susanne Stoll-Kleemann, University of Greifswald, Germany)
- *Biosphere reserves can make a difference in getting people to actually work with each other, to understand the need to cope with a changing situation.* (Martin Price, UNESCO Chair in Sustainable Mountain Development, United Kingdom)
- *In the real world, every measure requires minimizing negative trade-offs. In biosphere reserves there is the unique opportunity to demonstrate that we can use some of the natural flows without compromising biodiversity.* (Uwe Fritsche, Institute for Applied Ecology of Germany)

- *Biosphere reserves offer a framework in which rural communities can build the knowledge and the capability to decide and then to use energy technology sustainably.* (Phillia Restiani, REDD+ task force of Indonesia)
- *Biosphere reserves provide ideal platforms to take forward climate change education, research and monitoring, public debate and private sector partnerships.* (Irina Bokova, UNESCO Director-General)



Nihat Zal

- *Facilitating partnerships of the North with the South, of developed countries with less developed countries, biosphere reserves make an important contribution to greater justice, to benefit-sharing, to more international fairness between the rich and the poor.* (Ursula Heinen-Esser, German State Secretary for the Environment, Nature Conservation and Nuclear Safety)
- *Biosphere reserves offer exciting lessons which must be highlighted in Rio+20.* (Gretchen Kalonji, Assistant Director-General of UNESCO)
- *While World Heritage helps to preserve values, biosphere reserves are helping to create them.* (Irina Bokova, UNESCO Director-General)
- *Biosphere reserves need to balance two approaches: “small is beautiful” and “think big”.* (Arnd Henze, moderator)

- *We can capitalize on the popularity that climate change has attained and step in to use climate change education to educate people on the biosphere reserve concept.* (Sheila Ashong, Environmental Protection Agency of Ghana)



From left to right: Rattan Lal, Arnd Henze, Martin Price, Jorge Jurado

## Résumé: Le rôle des réserves de biosphère de l'UNESCO en vue du changement climatique

La conférence « Pour la vie, pour l'avenir » a discuté du rôle des réserves de biosphère de l'UNESCO dans la mise en œuvre et la progression des politiques sur le changement climatique. Elle s'est conclue par un appel à mieux utiliser l'expérience des réserves de biosphère dans les actions en vue du changement climatique. Dans le document final, la « Déclaration de Dresde », les participants ont appelé à un resserrement des liens entre l'atténuation et l'adaptation au changement climatique, l'atténuation de la pauvreté et la conservation de la diversité biologique.

La conférence s'est déroulée sur fond de négociations multilatérales au sujet

du changement climatique, ce qui rend les progrès plus lents que ce que presque tous les experts demandent. Dans le même temps, il y a un accord quasi universel sur la base scientifique: l'échec de la diminution d'urgence des gaz à effet de serre (GES) de manière durable entraînera des conséquences incalculables et désastreuses pour les plus pauvres et va priver les générations futures de qualité de vie.

Nos sociétés ont besoin de développer rapidement de nouveaux modes de vie moins polluants et en particulier ils ont besoin de mettre en œuvre rapidement de nouvelles sources d'énergie. Dans le même temps, il est indispensable que de telles réformes fondamen-

tales dans la société et l'économie aient une légitimité démocratique et que la population concernée se les approprie. Il y a une nécessité urgente d'expérimenter un mode de vie et de nouveaux modèles économiques dans des conditions réelles; ces modèles ne peuvent pas être entièrement décidés par le gouvernement sans faire participer les parties prenantes. La conférence a affirmé que les réserves de biosphère de l'UNESCO sont des très bons « laboratoires » de la vie réelle pour le développement durable et faible en carbone, encadrés par des formes participatives de gouvernance.

En plus de la sauvegarde des intérêts des êtres humains, il y a un besoin évident d'adaptation des mesures d'atténuation du changement climatique aux fonctions de l'écosystème déjà débordés et à la perte rapide de la biodiversité. La « Déclaration de Dresde » avertit que l'humanité ne peut pas seulement se concentrer sur la réduction des émissions de GES, sans tenir compte du fait que les écosystèmes doivent effectuer de nombreuses autres fonctions pour nous aussi, par exemple, la purification de l'eau. Sinon, l'atténuation du changement climatique pourrait créer plus de problèmes qu'il résoudra.

Un des principaux messages de la conférence est l'importance des réserves de biosphère comme coulisses pour négocier les conflits d'intérêt. L'atténuation du changement climatique et le développement des énergies renouvelables conduisent nécessaire-

ment à des conflits. Dans de nombreux pays du Sud et du Nord, de vastes zones sont déjà converties en monocultures pour cultiver des biocarburants. Toutefois, en raison de la croissance de la population mondiale, nous avons besoin de ces terres pour les cultures alimentaires. Dans le même temps, la production irréfléchie de biocarburants détruit des écosystèmes précieux et réduit la biodiversité. Fréquemment, de nouvelles lignes électriques ou des éoliennes rencontrent une opposition. Nous aurons à résoudre ces conflits - et nous y parviendrons donc. Les réserves de biosphère de l'UNESCO sont des endroits idéaux pour résoudre ces conflits de manière pilote, impliquant tous les acteurs concernés, et de communiquer les approches réussies dans le réseau mondial.

Enfin, le changement climatique d'origine anthropique a commencé il y a plusieurs décennies et sa vitesse augmente chaque année. Nous devons définir rapidement des stratégies d'adaptation pour chaque pays, province et district. Les réserves de biosphère de l'UNESCO sont des endroits idéaux pour la recherche sur les impacts du changement climatique et pour tester des stratégies d'adaptation globale dans tous les secteurs.

*Une brochure publiée à l'occasion de la conférence de Dresde présente 28 études de bonnes pratiques, illustrant comment les réserves de biosphère luttent efficacement contre le changement climatique. La brochure peut être téléchargée au format PDF (9 Mb) sur [bit.ly/j5CoXx](http://bit.ly/j5CoXx).*



**Déclarations clés sur l'importance des réserves de biosphère dans le contexte du changement climatique par les participants à la conférence:**

- *Nous devons intégrer la lutte contre la pauvreté, le développement durable et la conservation depuis l'origine. Pour les personnes vivant dans la région, il est évident que ces trois piliers vont de pair. Afin de rester convaincus dans des circonstances changeantes, le concept de réserve de biosphère est idéal. Mais les populations locales doivent ressentir un net avantage de la réserve de biosphère.* (Dessie Dalkie Dukamo, Ministre des Sciences et Technologies de l'Éthiopie)
  - *Pour nous, la réserve de biosphère est un cas économique, non seulement la conservation est importante mais aussi le développement économique durable. Les gens doivent comprendre et sentir leur profit. L'ère de l'interdiction est finie!* (Mohamed Aslam, Ministre du Logement, des Transports et de l'Environnement des Maldives)
  - *Les personnes vivant dans des réserves de biosphère ont déjà bien compris que la conservation de leurs écosystèmes et de leurs ressources naturelles est également essentielle pour lutter contre le changement climatique. Ils seraient plutôt surpris d'apprendre que, au niveau politique, il y*
- a des discours disjoints.* (Luis Fueyo Mac Donald, Chef de la Commission nationale mexicaine des zones naturelles protégées)
- *Les réserves de biosphère n'ajoutent pas seulement une dimension économique à la conservation de la nature; elles soulignent également la dimension sociale et culturelle; la bonne vie humaine est au cœur du concept.* (Ute Stoltenberg, Comité allemand de MAB)
  - *L'expérience montre que le concept de développement durable est trop abstrait pour les gens, alors ils ne se sentent pas responsables. Le concept des réserves de biosphère souligne que « Je fait partie du système de soutien de la vie, donc j'ai la responsabilité de la protéger ». (Sheila Ashong, Agence de la protection de l'environnement du Ghana)*
  - *Nous avons besoin que les acteurs du monde politique soit plus sensibilisés au changement climatique, mais en même temps, nous avons besoin de nombreuses initiatives différentes et différenciées au niveau local. En soutenant ces deux axes, le réseau mondial des réserves de biosphère peut fournir de nombreux exemples d'actions concrètes.* (Beate Jessel, Présidente de l'Agence fédérale allemande pour la Conservation de la Nature)

- *Les réserves de biosphère peuvent développer de nouveaux mécanismes pour atténuer le changement climatique, comme les marchés du carbone et les techniques de financement innovantes mises en place pour lutter contre les conséquences du déboisement et de la dégradation des forêts dans les pays en développement.* (Irina Bokova, Directrice générale de l'UNESCO)
  - *Comme nous n'avons pas la solution au changement climatique aujourd'hui, nous devons trouver des solutions dans la pratique; nous devrions utiliser les réserves de biosphère à cet effet.* (Natarajan Ishwaran, Secrétaire du programme MAB de l'UNESCO)
  - *Les réserves de biosphère ont en particulier réussi à démontrer une chose au cours des 40 dernières années: comment on peut rassembler tous les acteurs concernés autour d'une table et construire un consensus pour la durabilité – et trouver des solutions et des moyens de transformation, non seulement sur le plan national, mais à l'échelle mondiale.* (Stanislaw Tillich, Premier ministre de Saxe)
  - *Les réserves de biosphère ont tendance à régler les conflits directement, au lieu de les cacher en mettant la poussière sous le tapis; permettant ainsi le développement de solutions consensuelles et ex-*
- emplaires.* (Beate Jessel, Présidente de l'Agence fédérale allemande pour la Conservation de la Nature)
  - *Entre des êtres humains différents, il y aura toujours des conflits d'intérêts; une compétence particulière des réserves de biosphère de l'UNESCO consiste à gérer et à négocier de tels conflits.* (Natarajan Ishwaran, Secrétaire du programme MAB de l'UNESCO)
  - *Une gestion raisonnable des conflits est importante. Cela – l'étude des formes de bonne gouvernance – est précisément testé avec succès dans les réserves de biosphère.* (Susanne Stoll-Kleemann, Université de Greifswald, Allemagne)
  - *Les réserves de biosphère peuvent faire la différence en amenant les gens à réellement travailler ensemble et à comprendre la nécessité de faire face à une situation changeante.* (Martin Price, Chaire UNESCO en développement durable des montagnes, Royaume-Uni)
  - *Dans le monde réel, chaque mesure exige de minimiser les effets négatifs. Les réserves de biosphère offrent l'occasion unique de démontrer que nous pouvons utiliser des phénomènes naturels sans compromettre la biodiversité.* (Uwe Fritsche, Institut d'écologie appliquée, Allemagne)

- *Les réserves de biosphère offrent un cadre dans lequel les communautés rurales peuvent renforcer leurs connaissances et leur capacité de décision, et ensuite utiliser la technologie de l'énergie durable.* (Phillia Restiani, groupe de travail sur REDD+ auprès du président de l'Indonésie)
- *Les réserves de biosphère sont des plateformes idéales pour faire avancer l'éducation au changement climatique, la recherche et la surveillance, le débat public et les partenariats avec le secteur privé.* (Irina Bokova, Directrice générale de l'UNESCO)
- *Nous pouvons capitaliser sur la popularité atteint par le changement climatique et utiliser l'éducation au changement climatique pour éduquer les gens sur le concept de réserves de biosphère.* (Sheila Ashong, Agence de la protection de l'environnement du Ghana)
- *En facilitant les partenariats du Nord avec le Sud, des pays développés avec les pays moins développés, elles apportent une contribution importante à une plus grande justice, pour le partage des avantages, et à plus d'équité entre les riches et les pauvres au niveau international.* (Ursula Heinen-Esser, Secrétaire d'Etat au ministère fédéral de l'Environnement, de la Conservation de la Nature et de la sûreté nucléaire)



Margret Brahm and Michael Geier

- *Les réserves de biosphère offrent des leçons intéressantes qui doivent être mises en évidence pendant la conférence Rio+20 en 2012.* (Gretchen Kalonji, Sous-Directrice générale de l'UNESCO)
- *Le patrimoine mondial contribue à la préservation des valeurs, les réserves de biosphère contribuent à les créer.* (Irina Bokova, Directrice générale de l'UNESCO)
- *Les réserves de biosphère nécessitent d'équilibrer les deux approches: «small is beautiful» et «penser grand».* (Arnd Henze, modérateur)



From left to right: Luis Aragón, Ivo Mulder, Arnd Henze, Phillia Restiani, Uwe Fritsche

## Resumen: El rol de las reservas de biósfera de la UNESCO frente al cambio climático

La conferencia “Por la vida, por el futuro” debatió el rol de las reservas de biósfera de la UNESCO en la implementación y avance en las políticas de cambio climático. Concluyó con una petición para dar un mejor uso de la experiencia de las reservas de biósfera en la acción para el cambio climático. En el documento final, la “Declaración de Dresden”, los participantes llamaron a un acercamiento entre la mitigación y adaptación al cambio climático, mitigación de la pobreza y la conservación de la diversidad biológica.

La conferencia tomó lugar sobre un fondo de negociaciones multilaterales

sobre el cambio climático que tuvieron un menor progreso que la expectativa de los expertos. Al mismo tiempo, existe un acuerdo universal sobre las bases científicas: falló en mermar de forma urgente la emisión de gas de efecto invernadero (GEI) a niveles sustentables que llevarán a consecuencias desastrosas e incalculables para los más pobres y afectará la calidad de vida de las futuras generaciones.

Nuestras sociedades necesitan desarrollar rápidamente nuevos estilos de vida no contaminantes y, en particular, necesitan implementar con rapidez nuevas fuentes de energía. Al mismo tiempo es indispensable que tales

reformas fundamentales en la sociedad y en la economía tengan legitimidad democrática y la implicación de la población concerniente. Existe una necesidad urgente de experimentar nuevos estilos de vida y modelos económicos bajo condiciones de la vida real; tales modelos no pueden decidirse de forma descendente desde el gobierno. La conferencia afirmó que las reservas de biósfera de la UNESCO son laboratorios perfectos de la vida real para el desarrollo sustentable con bajo nivel de carbón enmarcado por formas participativas de gobierno.

Además de salvaguardar los intereses de la humanidad, hay una clara necesidad de adaptar las medidas para la mitigación del cambio climático a las ya sobrecargadas funciones del ecosistema y a la rápida pérdida de la biodiversidad. La Declaración Dresden advierte que los hombres no solo deberían enfocarse en la reducción de la emisión de GEI, sin tener en cuenta que los ecosistemas necesitan realizar para nosotros muchas otras funciones, por ejemplo la purificación del agua. De otra forma, la mitigación del cambio climático puede crear más problemas de los que resolverá.

Una de las revelaciones de la conferencia es la importancia de las reservas de biósfera como marco para negociar conflictos de intereses. La mitigación del cambio climático, así como la expansión de energías renovables conllevan necesariamente a conflictos. En muchos países del Norte y del Sur, extensas áreas están siendo converti-

das en monocultivos de alta tecnología para la producción de biocombustibles. Sin embargo, a causa del aumento de la población mundial, necesitamos estos territorios para el cultivo de comida. Al mismo tiempo, la producción descontrolada de biocombustibles destruye valiosos ecosistemas y reduce la biodiversidad. Frecuentemente, los nuevos tendidos eléctricos o turbinas de viento encuentran oposición. Tendremos que resolver estos conflictos y lo lograremos. Las reservas de biósfera de la UNESCO son lugares ideales para encontrar soluciones a los problemas como pruebas pilotos, con la participación de todos los interesados y comunicando las experiencias exitosas a la red mundial.

Finalmente, el cambio climático antropogénico empezó varias décadas atrás y su velocidad va en aumento cada año. Debemos definir rápidamente estrategias de adaptación para cada país, provincia y distrito. Las reservas de biosfera de la UNESCO son lugares ideales para la investigación sobre los impactos del cambio climático y para probar exhaustivamente estrategias de adaptación a través de los sectores.

*Un folleto publicado para la conferencia de Dresden presenta 28 casos de estudio de buenas prácticas, como las reservas de biósfera abordan exitosamente el cambio climático. El folleto se puede descargar como PDF (9 MB) en [bit.ly/j5CoXx](http://bit.ly/j5CoXx).*

**Declaraciones claves sobre el significado de las reservas de biósfera en el contexto del cambio climático de los participantes de la conferencia:**

- *Debemos integrar la mitigación de la pobreza, la conservación y el desarrollo sustentable desde el principio. Para los habitantes de cada región, es obvio que estos tres pilares van de la mano. Para el fin de estar convencidos bajo las circunstancias cambiantes, el concepto de las reservas de biósfera es ideal. Pero los habitantes locales deben tener un beneficio claro de éstas.* (Dessie Dalkie Dukamo, Ministro de Ciencia y de Tecnología, Etiopía)
- *Para nosotros, las reservas de biósfera son un caso económico, no sólo para conservación sino para el desarrollo económico sustentable. La gente debe entender y sentir sus beneficios. ¡La era de la prohibición ha terminado!* (Mohamed Aslam, Ministro de Vivienda, Transporte y Medio Ambiente, las Maldivas)
- *La gente que está viviendo en las reservas de biósfera entendió que la conservación de sus ecosistemas y sus recursos naturales es clave en la lucha en contra el cambio climático. Ellos se sorprenderían al saber que en un plano político, hay discursos no convergentes.* (Luis Fueyo Mac Donald, Comisionado Nacional de Áreas Naturales Protegidas, México)
- *Las reservas de biósfera no sólo agregan una dimensión económica a la conservación de la naturaleza; también delinear las dimensiones sociales y culturales; el bienestar de la vida humana está en el corazón del concepto.* (Ute Stoltenberg, Comité MAB alemán)
- *La experiencia enseña que el concepto de desarrollo sustentable es demasiado abstracto para la gente, por lo que no se sienten responsables. El concepto de la reserva de biósfera enfatiza que 'soy parte del sistema de soporte de vida, por lo que tengo responsabilidad de protegerlo'.* (Sheila Ashong, Agencia de Protección Ambiental de Ghana)
- *En cuanto al cambio climático, necesitamos una mayor conciencia en el plano político, pero al mismo tiempo necesitamos diferentes y diferenciadas iniciativas en un nivel local. Apoyando este doble impulso, la red mundial de reservas de biósfera puede aportar muchos ejemplos para el accionar concreto.* (Beate Jessel, Presidente de la Agencia Federal para la Conservación de la Naturaleza, Alemania)
- *Las reservas de biosfera pueden desarrollar muchos mecanismos*

*para la mitigación del cambio climático como el Mercado del carbón y mecanismos de financiación innovadores para la lucha contra las consecuencias de la deforestación y la degradación de los bosques en países en desarrollo.* (Irina Bokova, Directora General de la UNESCO)

- *Ya que aún no poseemos la solución para el cambio climático, debemos encontrar soluciones en la práctica; para esto debemos usar las reservas de biósfera.* (Natarajan Ishwaran, Secretario del Programa MAB de la UNESCO)
- *Las reservas de biosferas tuvieron éxito en demostrar una cosa a lo largo de los últimos 40 años: como reunir a todos los actores relevantes en torno a una mesa y construir consenso para la sustentabilidad – y en encontrar soluciones y maneras para la transformación no sólo a nivel nacional sino en un nivel global.* (Stanislaw Tillich, Primer Ministro, Estado Libre de Sajonia, Alemania)
- *Las reservas de biosfera tienden a afrontar los conflictos de frente en lugar de meterlos bajo la alfombra; permitiendo el ejemplar y consensuado desarrollo de soluciones.* (Beate Jessel, Presidente de la Agencia Federal para la Conservación de la Naturaleza, Alemania)



Uriel Safriel

- *Entre distintas personas existirán siempre conflictos de intereses; una de las cualidades de las reservas de biosfera de la UNESCO consiste en manejar y negociar tales conflictos.* (Natarajan Ishwaran, Secretario del Programa MAB de la UNESCO)
- *El manejo de los conflictos significativos es importante. Pero exactamente esto – buscar formas de buen gobierno – es probado con éxito en las reservas de biosfera.* (Susanne Stoll-Kleemann, Universidad de Greifswald, Alemania)
- *Las reservas de biosfera pueden hacer una diferencia en poner a trabajar a la gente unos con otros, a entender la necesidad de cooperación frente a una situación cambiante.* (Martin Price, Cátedra UNESCO para el

Desarrollo Sostenible de las Montañas, Reino Unido)

- *En el mundo real, todas las medidas requieren minimizar los efectos secundarios. En las reservas de biosfera existe la oportunidad única de demostrar que podemos hacer uso de las corrientes naturales sin comprometer la biodiversidad.* (Uwe Fritsche, Instituto de Ecología Aplicada, Alemania)
- *Las reservas de biosfera ofrecen un marco en el cual las comunidades rurales pueden construir el conocimiento y la capacidad para decidir y luego usar energía tecnológica sustentablemente.* (Phillia Restiani, grupo de trabajo REDD+ de Indonesia)
- *Las reservas de biosfera proveen plataformas ideales para llevar adelante la educación, investigación, monitoreo, debates públicos y privados sobre el cambio climático.* (Irina Bokova, Directora General de la UNESCO)
- *Podemos capitalizar la popularidad que el cambio climático ha tenido y utilizarla para educar a las personas sobre el concepto de reservas de biosfera.* (Sheila Ashong, Agencia de Protección Ambiental de Ghana)
- *Facilitando las asociaciones entre el Norte y el Sur, los países desarrollados con los menos desarrollados, hacen una importante contribución para una mayor justicia, para la distribución de los beneficios, para un mejor balance internacional entre ricos y pobres.* (Ursula

Heinen-Esser, Secretario de Estado del Ministro Federal de Medio Ambiente, Conservación de la Naturaleza y Seguridad Nuclear, Alemania)

- *Las reservas de biosfera ofrecen excitantes lecciones que deben ser señaladas en Río+20.* (Gretchen Kalonji, Subdirectora General de la UNESCO)
- *Mientras que el Patrimonio de la Humanidad ayuda a la preservación de los valores, las reservas de biosfera ayudan a crearlos.* (Irina Bokova, Directora General de la UNESCO)



Guy Broucke and Rupert Baber

- *Las reservas de biosfera necesitan equilibrar dos enfoques: “pequeño es hermoso” y “piensa en grande”.* (Arnd Henze, moderador)





From left to right: June Marie Mow, Arnd Henze, Susanne Stoll-Kleemann, Sheila Ashong

## Zusammenfassung: Beitrag der Biosphärenreservate zur Bewältigung des Klimawandels

Die Konferenz „Für das Leben, für die Zukunft“ diskutierte den Beitrag von UNESCO-Biosphärenreservaten zur Umsetzung und Fortentwicklung von Klimapolitik. Die Konferenz endete mit einem Appell, die Erfahrung der Biosphärenreservate für den Klimaschutz stärker zu nutzen. Im Abschlussdokument, der „Dresdner Erklärung“, fordern die Teilnehmer eine engere Verzahnung von Maßnahmen zum Klimaschutz, zur Anpassung an den Klimawandel, zur Armutsbekämpfung sowie zum Erhalt der biologischen Vielfalt.

Die Konferenz fand statt während laufender multilateraler Klimaverhandlungen, die langsamer vorankommen

als fast alle Experten fordern. Zugleich herrscht weitgehende Einigkeit über die wissenschaftlichen Tatsachen: Wenn es nicht schnellstmöglich gelingt, Treibhausgasemissionen auf ein langfristig tragfähiges Niveau zu reduzieren, wird dies unberechenbare und katastrophale Folgen für die Ärmsten der Armen haben und die Lebensqualität künftiger Generationen erheblich beeinträchtigen.

Unsere Gesellschaften müssen daher schnell neue Lebensstile mit geringeren Emissionen entwickeln und insbesondere neue Wege der Energiegewinnung gehen. Gleichzeitig ist es unabdingbar, dass solch grundlegende Reformen der Wirtschafts- und

Gesellschaftsordnung demokratisch legitimiert sind und von der betroffenen Bevölkerung akzeptiert und unterstützt werden. Es ist daher zunächst dringend erforderlich, neue Lebensweisen und ökonomische Modelle unter realen Bedingungen auszuprobieren, und nicht von oben herab, von Regierungsseite, zu verordnen. Die Konferenz hatte zum Ergebnis, dass UNESCO-Biosphärenreservate hervorragende, durch partizipative Formen der Entscheidungsfindung geprägte „Freiluft-Labore“ für eine kohlenstoffarme, nachhaltige Entwicklung sind.

Neben der Wahrung der Interessen der Menschen ist vor allem die Entwicklung maßgeschneiderter Maßnahmen nötig, welche den Klimawandel eindämmen bzw. die Anpassung an die nicht mehr abwendbaren Folgen sicherstellen und zugleich die bereits überbeanspruchten Ökosystem-Funktionen und den rapiden Verlust der biologischen Vielfalt im Blick behalten. Die „Dresdner Erklärung“ warnt die Menschheit davor, sich allein auf die Verringerung der Treibhausgas-Emissionen zu konzentrieren, ohne zu berücksichtigen, dass Ökosysteme für uns viele weitere Dienstleistungen erfüllen, z. B. die Süßwasserversorgung. Sonst könnte Klimaschutz mehr Probleme verursachen als er löst.

Eine der wichtigsten Erkenntnisse der Tagung ist die Bedeutung von Biosphärenreservaten als Räume zur Aushandlung von Interessenskonflikten. Klimaschutz und Ausbau erneuerbarer Energien führen zwangsläufig zu Kon-

flikten. In vielen Ländern des Südens und des Nordens sind große Flächen bereits in High-Tech-Monokulturen für den Anbau von Biokraftstoffen umgewandelt worden. Doch angesichts der wachsenden Weltbevölkerung benötigen wir dieses Land für den Anbau von Nahrungsmitteln. Gleichzeitig zerstört die gedankenlose Produktion von Biokraftstoffen wertvolle Ökosysteme und wirkt sich negativ auf die Biodiversität aus. Häufig treffen neue Stromleitungen oder Windkraftanlagen auf Widerstand. Wir müssen diese Konflikte lösen – und das können wir auch. UNESCO-Biosphärenreservate sind ideale Orte für die beispielhafte Suche nach Lösungen für solche Konflikte, unter Einbeziehung aller Beteiligten, und sie dienen zugleich der Vermittlung erfolgreicher Ansätze in das Weltnetz der Biosphärenreservate.

Der durch Menschen verursachte Klimawandel hat vor vielen Jahrzehnten begonnen und seine Geschwindigkeit nimmt von Jahr zu Jahr zu. Wir müssen rasch Anpassungsstrategien für jedes Land, jede Region und jeden Landkreis formulieren. UNESCO-Biosphärenreservate sind die idealen Orte für die Erforschung von Auswirkungen des Klimawandels und für die Erprobung umfassender, sektorübergreifender Anpassungsstrategien.

*Eine Broschüre, die begleitend zur Dresdner Konferenz veröffentlicht wurde, präsentiert 28 Fallstudien guter Praxis, wie Biosphärenreservate zur Bekämpfung des Klimawandels*

beitragen. Die Broschüre kann als PDF (9 MB) unter [bit.ly/j5CoXx](http://bit.ly/j5CoXx) heruntergeladen werden.

### **Kernaussagen von Konferenzteilnehmern zur Bedeutung von Biosphärenreservaten im Klimawandelkontext:**

- *Wir müssen Armutsbekämpfung, nachhaltige Entwicklung und Naturschutz von Anfang an zusammendenken. Für unsere Mitmenschen vor Ort ist es offensichtlich, dass diese drei Säulen Hand in Hand gehen. Um diesen Ansatz auch unter sich ändernden Umständen abzusichern, ist das Biosphärenreservats-Konzept ideal. Jedoch müssen die Menschen vor Ort einen klaren Nutzen vom Biosphärenreservat haben.* (Dessie Dalkie Dukamo, Minister für Wissenschaft und Technologie, Äthiopien)
- *Für uns ist das Biosphärenreservat auch eine Frage der Wirtschaft, es geht nicht nur um Naturschutz, sondern um eine nachhaltige wirtschaftliche Entwicklung. Die Menschen müssen das verstehen und auch die Vorteile spüren. Die Zeit der Verbote ist vorbei!* (Mohamed Aslam, Minister für Wohnen, Verkehr und Umwelt, Malediven)
- *Menschen in Biosphärenreservaten haben bereits verstanden, dass der Erhalt ihrer Ökosysteme und der natürlichen Ressourcen*

*auch ein Schlüssel zur Bekämpfung des Klimawandels ist. Sie wären überrascht, würden sie erfahren, dass das auf der politischen Ebene noch weitgehend separate Diskurse sind.*

(Luis Fueyo Mac Donald, Leiter der mexikanischen Schutzgebietsbehörde)

- *Biosphärenreservate geben dem Naturschutz nicht nur eine wirtschaftliche Dimension, sie betonen gerade auch die soziale und kulturelle Dimension. Gutes menschliches Leben steht im Zentrum des Konzepts.* (Ute Stoltenberg, Deutsches MAB-Nationalkomitee)
- *Die Erfahrung hat gezeigt, dass das Konzept der nachhaltigen Entwicklung zu abstrakt für die Menschen ist, so dass sie sich nicht dafür verantwortlich fühlen. Das Konzept der Biosphärenreservate hingegen betont, dass ich ein wichtiger Teil meines Lebensraums bin, und daher die Verantwortung habe, diesen zu schützen.* (Sheila Ashong, Nationale Umweltschutzbehörde, Ghana)
- *Bezogen auf den Klimawandel brauchen wir übergreifendes Bewusstsein auf politischer Ebene, aber zugleich auch sehr vielfältige und differenzierte Initiativen auf lokaler Ebene. Für diese doppelte Herausforderung kann das Netzwerk der Biosphä-*

*renreservate sehr viele Beispiele für konkretes Handeln liefern.* (Beate Jessel, Präsidentin des Bundesamtes für Naturschutz)

- *Biosphärenreservate können neue Klimaschutz-Mechanismen entwickeln, etwa über Kohlenstoffmärkte oder innovative Finanzierungsmechanismen, um die Folgen der Entwaldung beziehungsweise Schädigung von Wäldern in Entwicklungsländern zu bekämpfen.* (Irina Bokova, UNESCO-Generaldirektorin)
- *Da wir die Lösung für den Klimawandel noch nicht gefunden haben, sollten wir die Biosphärenreservate dazu nutzen, in der Praxis nach Lösungen zu suchen.* (Natarajan Ishwaran, Direktor des UNESCO MAB-Programms)
- *Wie es gelingen kann, alle relevanten Akteure an einen Tisch zu bekommen, um einen Konsens für Nachhaltigkeit herzustellen – das zeigt seit 40 Jahren das MAB-Programm mit seinen Modellregionen für nachhaltige Entwicklung, den Biosphärenreservaten weltweit.* (Stanislaw Tillich, Ministerpräsident des Freistaates Sachsen)
- *Biosphärenreservate gehen Konflikte meist offensiv an, anstatt sie unter den Teppich zu kehren, so dass einvernehmliche, beispielhafte Lösungen entwickelt werden können.* (Beate Jessel, Präsidentin

des deutschen Bundesamtes für Naturschutz)

- *Zwischen verschiedenen Menschen wird es immer Interessenkonflikte geben; eine besondere Kompetenz der UNESCO-Biosphärenreservate besteht in der Aushandlung und Überwindung solcher Konflikte.* (Natarajan Ishwaran, Direktor des UNESCO MAB-Programms)



From left to right: Manal Fwazy, Samir Ghabbour, Nizar Hani

- *Sinnvolles Konfliktmanagement ist wichtig. Und genau dies – die Suche nach geeigneten Formen der Entscheidungsfindung – wird in Biosphärenreservaten sehr erfolgreich getestet.* (Susanne Stoll-Kleemann, Universität Greifswald, Deutschland)
- *Biosphärenreservate können den entscheidenden Unterschied machen, Leute dazu zu bringen, tatsächlich zusammenzuarbeiten, und die Notwendigkeit zu erken-*

nen, mit einer sich verändernden Situation umzugehen. (Martin Price, UNESCO-Lehrstuhl für nachhaltige Entwicklung in Bergregionen, Vereinigtes Königreich)

- *In unserer realen Welt kommt es bei jeder Maßnahme darauf an, negative Folgen von Kompromissen zu minimieren. In Biosphärenreservaten besteht die einzigartige Gelegenheit zu zeigen, dass wir als Menschen einige der natürlichen Dynamiken nutzen können, ohne die biologische Vielfalt zu beeinträchtigen.* (Uwe Fritsche, Öko-Institut e.V., Deutschland)
- *Biosphärenreservate bieten einen Rahmen, in dem die Landbevölkerung die Fähigkeit erwerben kann, begründete Entscheidungen zu treffen und Energietechniken schließlich nachhaltig zu nutzen.* (Phillia Restiani, REDD+ Task-Force, Indonesien)
- *Biosphärenreservate sind ideale Plattformen, um Klimawandelbildung, -forschung und -monitoring, aber auch die öffentliche Debatte und private Partnerschaften voranzubringen.* (Irina Bokova, UNESCO-Generaldirektorin)
- *Dass der Klimawandel heute allgemein bekannt ist, können wir nutzen, um in der Klimawandelbildung den Menschen auch das Biosphärenreservats-Konzept nahezubringen.* (Sheila

Ashong, Umweltschutzbehörde von Ghana)

- *Einer ihrer großen Verdienste ist, durch Partnerschaften des Nordens mit dem Süden, der entwickelten mit den weniger entwickelten Staaten, einen wichtigen Beitrag zu mehr Gerechtigkeit, zu einem Vorteilsausgleich und zu mehr internationaler Fairness zwischen Arm und Reich geleistet zu haben.* (Ursula Heinen-Esser, Parlamentarische Staatssekretärin im Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit)
- *Biosphärenreservate bieten spannende Erfahrungen, die wir im Rahmen von Rio+20 hervorheben sollten.* (Gretchen Kalonji, Beigeordnete Generaldirektorin der UNESCO)
- *Während das Welterbe hilft, Werte zu bewahren, tragen Biosphärenreservate dazu bei, Werte zu schaffen.* (Irina Bokova, UNESCO-Generaldirektorin)
- *Biosphärenreservate sollten zwei Ansätze vereinen: „klein aber fein“ auf der einen und „think big“, das heißt sich hohe Ziele setzen, auf der anderen Seite.* (Arnd Henze, Moderator)





## Dresden Declaration on Biosphere Reserves and Climate Change

**We, the participants of the international conference “For life, for the future: Biosphere reserves and climate change“, held in Dresden on 27 and 28 June 2011, issue the following declaration:**

Climate change mitigation, adaptation to climate change and the conservation of biological diversity are among today’s key environmental challenges. Rising to these challenges requires strong political commitment and decisive action worldwide. In many cases we already have the knowledge and technology to change our development path. We now have to mobilise our resources and creativity in order to further intensify action towards sustainable development - including changes in our behaviour.

The International Coordinating Council of the UNESCO “Man and the Biosphere“ (MAB) Programme convened for the first time in 1971 and laid the foundations for a new type of conservation area - biosphere reserves. It declared the harmonious development of man and nature to be its key goal. The idea of biosphere reserves has met with growing approval worldwide and over the past four decades has become a great success. Biosphere reserves represent a global network of model regions in which sustainable forms of use and options for adaptation to changing ecological, economic and social conditions can be tested, involving all stakeholders.

The world network of over 560 biosphere reserves in more than 100 countries, established in the framework of the UNESCO MAB Programme, adds the wealth of experience gathered over 40 years in and with model regions for sustainable development to climate change mitigation and adaptation, and aims to make a substantial contribution to these processes as well as to the conservation of biological diversity. We expect current global climate protection measures to also satisfy the urgent necessities of biodiversity conservation and its sustainable use.

Since its establishment the MAB Programme has pursued innovative approaches in research, monitoring, education and capacity building, management and in implementing model projects. These approaches go far beyond nature conservation and are suitable as models for a sustainable way of life. Biosphere reserves are thus an important element of safeguarding a liveable earth for the future of generations to come.

Biosphere reserves are an effective instrument for mitigating climate change and serve as models for adaptation to the impacts of this change. This applies





Johannes Prüter sharing his experiences from the biosphere reserve Elbe River Landscape

particularly in the domains of sustainable land use, green economies, safeguarding ecosystem services, energy efficiency and the use of renewable energies. Biosphere reserves are learning sites for sustainable development.

With reference to the goals of the Seville Strategy (1995) and the Madrid Action Plan (2008), the conference participants call on the States represented in the MAB Programme to give greater weight to biosphere reserves in their strategies on climate change mitigation and adaptation, and to transfer approaches developed in biosphere reserves to other regions.

On this basis we consider the following measures to be required:

#### **At policy level in the Member States**

- (1) Place greater focus on the capacities of the MAB Programme and biosphere reserves for mitigating and adapting to the impacts of climate change, and improve integrating their contributions into national and international climate strategies and policies,
- (2) Incorporate the idea of biosphere reserves into development cooperation to a greater degree, and support corresponding projects that link poverty eradication, biodiversity conservation and climate protection in developing countries,
- (3) Establish adequate legislative, administrative and institutional frameworks at national and/or local level for biosphere reserves, equip these with appropriate competences, and provide adequate funding and staff for the administration of biosphere reserves and their functions,

- (4) Further develop biosphere reserves as model regions for sustainable development, and deploy good practices and experience gained as widely as possible,
- (5) Support problem-oriented, interdisciplinary and applied research, monitoring and evaluation, including traditional knowledge, in relation to climate change and its impacts on biosphere reserves, and incorporate the outcomes of these activities into national and international research programmes and projects,
- (6) Support innovative economic instruments and activities that combine climate change mitigation and adaptation, with maintenance of the integrity of ecosystems and biodiversity as well as social development, including the needs of local and indigenous communities, in particular in the context of extraction of natural resources and the generation of energy,
- (7) Promote the role of land use in carbon sequestration, in particular in forests through implementing and assessing the voluntary carbon programme REDD+ in biosphere reserves, to improve learning about impacts, markets, and practices, as well as to develop improved methodologies and disseminate the lessons learned,
- (8) Promote more understandable communication of the concept of biosphere reserves and the processes required to that end.



From left to right: Luis Fueyo, Mohmaed Aslam, Arnd Henze, Dessie Dalkie Dukamo, Natarajan Ishwaran

### **At practical level in the biosphere reserves**

- (9) Intensify efforts to develop innovative approaches for climate change mitigation and adaptation (including financing models), implement these approaches, adapt management plans accordingly and integrate these with existing sustainable development approaches, and use these to strengthen the regions,
- (10) Draw up and implement management plans to adapt to a changing climate, based on a vulnerability analysis, taking into account the conservation and sustainable use of biological diversity and involving the local population,
- (11) Integrate traditional, indigenous and local knowledge and modern scientific findings to strengthen climate change research,
- (12) Intensify efforts to use biosphere reserves as learning sites for sustainable development, that communicate how biodiversity conservation sustains the flow of ecosystem services and supports the creation of economic opportunities,
- (13) Further develop and reinforce international cooperation on sharing experience, effective methods, and joint projects - including in the framework of partnerships,
- (14) Develop and strengthen partnerships with the private sector in order to identify, develop and promote local, national and international markets for sustainably produced products and services, and to advance climate-friendly economic practices in these areas.

### **At UNESCO level**

- (15) Comprehensively support and use the MAB Programme and biosphere reserves in line with the UNESCO Strategy for Action on Climate Change and the UNESCO Climate Change Initiative, not only as reference sites for a better understanding of the impacts of climate change, in particular in regions specifically targeted by UNESCO, priority Africa and SIDS,
- (16) Further develop the World Network of Biosphere Reserves as one of UNESCO's key assets: as reference regions for a better understanding of the impacts of climate change on human societies, cultural and biological diversity, ecosystem services and the world's natural and cultural heritage,

- and consider including biosphere reserves into global, coordinated interdisciplinary research programmes on climate change,
- (17) Foster international exchange on best practices and promote South-South and North-South-South partnerships on technology sharing and best practice through twinning,
  - (18) Cooperate with other UNESCO and UN intergovernmental programmes and conventions, in particular the three Rio conventions, the UN Decade of Education for Sustainable Development, the UN Conference on Sustainable Development Rio+20, and other relevant international and national organisations and agencies so that they make greater use of these biosphere reserves as research, learning and pilot regions for sustainability processes,
  - (19) Support Member States, politically and financially, in the designation and successful management of new biosphere reserves, particularly trans-boundary reserves.

## **Conclusion**

The conference participants call for the provision of adequate financial, organisational and staff capacities to implement the recommendations contained in this Declaration.

The conference participants invite the International Coordinating Council of the MAB Programme to endorse this Declaration at its 23rd session and to present it to the 36th session of the UNESCO General Conference in autumn 2011.

# Déclaration de Dresde sur les réserves de biosphère et le changement climatique

**Nous, les participants à la conférence internationale « Pour la vie, pour l'avenir : les réserves de biosphère et le changement climatique », qui s'est tenue à Dresde les 27 et 28 juin 2011, déclarons ce qui suit :**

L'atténuation du changement climatique, l'adaptation à ses effets et la conservation de la diversité biologique comptent aujourd'hui parmi les principaux enjeux environnementaux. Relever ces défis nécessite un engagement politique sans faille et l'adoption de mesures décisives à l'échelle mondiale. Dans bien des cas, nous avons déjà les connaissances et les technologies indispensables pour nous orienter vers un autre mode de développement. Il nous faut maintenant mobiliser nos ressources et notre créativité afin d'intensifier notre engagement sur la voie du développement durable, ce qui implique également des changements dans notre façon d'agir.

Réuni pour la première fois en 1971, le Conseil international de coordination du Programme sur l'homme et la biosphère (MAB) de l'UNESCO a jeté les bases d'un nouveau type de zones de conservation – les réserves de biosphère, ayant pour objectif principal le développement harmonieux de l'homme et de la nature. Le principe des réserves de biosphère a suscité une approbation croissante dans le monde entier et son succès s'est vérifié tout au long des quarante dernières années. Les réserves de biosphère représentent un réseau mondial de régions modèles où de nouvelles pratiques et options durables peuvent être testées pour une meilleure adaptation aux changements écologiques, économiques et sociaux, avec la participation de toutes les parties prenantes.

Le réseau mondial créé dans le cadre du Programme sur l'homme et la biosphère (MAB) de l'UNESCO, et composé de plus de 560 réserves de biosphère réparties dans une centaine de pays, nous fait bénéficier de l'expérience acquise durant 40 années dans et avec les régions modèles de développement durable et vise à apporter une contribution substantielle à l'atténuation du changement climatique, à l'adaptation à ses effets et à la conservation de la diversité biologique. Nous attendons des mesures actuelles de protection du climat mondial qu'elles satisfassent également aux impératifs urgents de la conservation de la biodiversité et de son utilisation durable.

Depuis sa création, le Programme MAB a adopté des approches innovantes dans les domaines de la recherche, de la surveillance continue, de l'éducation et du renforcement des capacités, de la gestion, ainsi que pour la mise en œuvre de projets modèles. Loin de se limiter à la conservation de la nature, ces approches



Conference participants discussing in the coffee break

fournissent des modèles pertinents pour un mode de vie durable. Les réserves de biosphère sont donc un élément important dans les stratégies visant à préserver une Terre viable pour l'avenir des générations futures.

Les réserves de biosphère constituent un instrument efficace dans l'atténuation du changement climatique et servent de modèles pour l'adaptation aux effets de ce changement. Une telle fonction est particulièrement reconnue dans les domaines de l'utilisation durable des sols, des économies vertes, de la sauvegarde des services écosystémiques, de l'efficacité énergétique et de l'utilisation des énergies renouvelables. Les réserves de biosphère sont des sites d'apprentissage du développement durable.

Se référant aux objectifs de la Stratégie de Séville (1995) et du Plan d'action de Madrid (2008), les participants à la conférence demandent aux États représentés au sein du Programme MAB d'accorder plus d'importance aux réserves de biosphère dans leurs stratégies pour l'atténuation du changement climatique et l'adaptation à ses effets. Ils souhaitent également que ces États étendent à d'autres régions la mise en place des modèles développés dans les réserves de biosphère.

Sur cette base, nous considérons que les mesures suivantes doivent être prises :

### **Au niveau des politiques dans les États membres**

- (1) Accorder une plus grande attention aux capacités qu'offrent le Programme MAB et les réserves de biosphère dans l'optique de l'atténuation du changement climatique et de l'adaptation à ses effets, et mieux intégrer leurs apports dans les stratégies et les politiques relatives au climat à l'échelle nationale et internationale ;

- (2) Prendre davantage en compte le principe des réserves de biosphère dans la coopération en matière de développement et soutenir les projets correspondants qui associent l'élimination de la pauvreté, la conservation de la biodiversité et la protection du climat dans les pays en développement ;
- (3) Mettre en place des cadres législatifs, administratifs et institutionnels adéquats à l'échelle nationale et/ou locale pour les réserves de biosphère, doter ces dernières des compétences appropriées, et fournir le financement et le personnel nécessaires à l'administration des réserves de biosphère et à leur fonctionnement ;
- (4) Développer davantage les réserves de biosphère en tant que régions modèles de développement durable et diffuser aussi largement que possible les bonnes pratiques et l'expérience acquise ;
- (5) Soutenir la recherche appliquée interdisciplinaire axée sur la résolution des problèmes, ainsi que le suivi et l'évaluation, y compris les savoirs traditionnels, en rapport avec le changement climatique et ses effets sur les réserves de biosphère, et intégrer les résultats de ces activités dans les programmes et projets de recherche à l'échelle nationale et internationale ;
- (6) Soutenir les instruments et activités économiques novateurs qui associent l'atténuation du changement climatique et l'adaptation à ses effets à la préservation de l'intégrité des écosystèmes et de la biodiversité, ainsi qu'au développement social, notamment les besoins des communautés locales et autochtones, en particulier dans le cadre de l'extraction des ressources naturelles et de la production d'énergie ;
- (7) Promouvoir le rôle de l'occupation des sols dans le piégeage du carbone, notamment dans les forêts, en mettant en œuvre et en évaluant le programme volontaire relatif au carbone REDD+ dans les réserves de biosphère, afin d'en apprendre davantage sur les effets, les marchés et les pratiques, ainsi que de mettre au point de meilleures méthodes et de diffuser les enseignements tirés ;
- (8) Promouvoir une communication plus facile à saisir autour du concept de réserves de biosphère, ainsi que les processus nécessaires à cette fin ;

### **Au niveau pratique dans les réserves de biosphère**

- (9) Intensifier les efforts afin de développer des approches innovantes en matière d'atténuation du changement climatique et d'adaptation à ses effets (y compris

des modèles financiers), mettre en pratique ces approches, adapter les plans de gestion en conséquence et les intégrer dans les approches du développement durables existantes, et les utiliser pour renforcer l'action des régions ;

- (10) Élaborer et mettre en œuvre des plans de gestion pour l'adaptation au changement climatique, sur la base d'une analyse de la vulnérabilité, en prenant en compte la conservation et l'utilisation durable de la diversité biologique et en impliquant la population locale ;
- (11) Prendre en compte les savoirs traditionnels, autochtones et locaux et les connaissances scientifiques modernes pour étayer la recherche sur le changement climatique ;
- (12) Intensifier les efforts pour utiliser les réserves de biosphère en tant que sites d'apprentissage du développement durable, qui font comprendre comment la conservation de la biodiversité maintient le flux de services écosystémiques et soutient la création d'opportunités économiques ;
- (13) Développer et resserrer davantage la coopération internationale pour le partage des expériences et des méthodes efficaces, ainsi que pour la mise en place de projets conjoints, y compris dans le cadre de partenariats ;
- (14) Accentuer et consolider les partenariats avec le secteur privé dans le but d'identifier, de développer et de promouvoir les marchés locaux, nationaux et internationaux pour les produits et services conformes aux impératifs du développement durable, et afin de privilégier les pratiques économiques non nuisibles au climat dans ces régions ;

### **Au niveau de l'UNESCO**

- (15) Soutenir et exploiter pleinement le Programme MAB et les réserves de biosphère conformément à la Stratégie et à l'Initiative de l'UNESCO pour faire face au changement climatique, ces réserves n'étant pas conçues seulement comme des sites de référence pour mieux comprendre les effets du changement climatique, en particulier dans les régions spécialement visées par l'UNESCO au titre de la priorité accordée à l'Afrique et aux PEID ;
- (16) Étendre le Réseau mondial de réserves de biosphère, qui sont l'un des atouts clés de l'UNESCO en tant que régions de référence pour une meilleure compréhension des effets du changement climatique sur les sociétés humaines, sur la diversité culturelle et biologique, sur les services écosystémiques et sur le patrimoine naturel et culturel mondial, et envisa-





Audience during Ursula Heinen-Esser's message of greeting

ger d'intégrer les réserves de biosphère dans les programmes de recherche mondiaux coordonnés et interdisciplinaires sur le changement climatique ;

(17) Favoriser l'échange international sur les meilleures pratiques et promouvoir les partenariats Sud-Sud et Nord-Sud-Sud en matière de partage de technologies et de bonnes pratiques par le biais de jumelages ;

(18) Coopérer avec d'autres programmes intergouvernementaux et conventions de l'UNESCO et du système des Nations Unies, en particulier les trois conventions de Rio, la Décennie des Nations Unies pour l'éducation au service du développement durable, la Conférence des Nations Unies sur le développement durable Rio + 20, et d'autres organisations ou institutions nationales ou internationales pertinentes afin de faire en sorte qu'elles utilisent davantage les réserves de biosphère en tant que régions modèles pour la recherche, l'apprentissage et l'expérimentation en matière de durabilité ;

(19) Apporter un soutien politique et financier aux États membres pour la désignation de nouvelles réserves de biosphère, en particulier des réserves transfrontalières, et leur gestion concluante.

## Conclusion

Les participants à la conférence demandent que des moyens financiers, organisationnels et humains suffisants soient prévus pour mettre en œuvre les recommandations formulées dans la présente Déclaration.

Les participants à la conférence invitent le Conseil international de coordination du Programme sur l'homme et la biosphère (MAB) à faire sienne cette Déclaration lors de sa 23e session et à la présenter à la Conférence générale de l'UNESCO lors de sa 36e session en automne 2011.

## Declaración de Dresde sobre reservas de biosfera y cambio climático

**Nosotros, los participantes en la Conferencia Internacional “Para la vida, para el futuro: Las reservas de biosfera y el cambio climático”, celebrada en Dresde los días 27 y 28 de junio de 2011, declaramos que:**

La mitigación y adaptación al cambio climático, así como la conservación de la diversidad biológica, forman parte de los principales desafíos medioambientales del presente. Para poder responder a estos desafíos se requiere una fuerte voluntad política y una actuación decidida en todo el mundo. En muchos casos los conocimientos necesarios para acometer un cambio de orientación y las tecnologías correspondientes están ya disponibles. Lo que ahora se precisa es movilizar nuestros recursos y creatividad para fortalecer el compromiso hasta alcanzar un desarrollo sostenible, que también implica cambios en el comportamiento de nuestras sociedades.

El Consejo Internacional de Coordinación (CIC) del Programa “El hombre y la biosfera” (Programa MAB, por sus siglas en inglés) de la UNESCO se reunió por primera vez en 1971 y estableció los fundamentos para un nuevo tipo de área de conservación, la “reserva de biosfera”. El Consejo estableció el desarrollo armónico del hombre y de la naturaleza como su objetivo central. La idea de las reservas de biosfera encuentra una acogida creciente por todo el mundo y se ha convertido a lo largo de estas cuatro décadas en una iniciativa coronada por el éxito. Éstas representan una red mundial de regiones modelo, en las cuales se ensayan formas sostenibles de explotación de los recursos y posibilidades de adaptación a las cambiantes condiciones ecológicas, económicas y sociales, todo ello con la participación de los agentes implicados.

La red mundial reúne a más de 560 reservas de biosfera en más de 100 países y aporta, en el marco del programa MAB de la UNESCO, su incalculable experiencia de 40 años en estas “regiones modelo” para el desarrollo sostenible para la mitigación y adaptación al cambio climático, con ello proporciona una contribución sustancial a estos procesos, así como también a la conservación de la diversidad biológica. Confiamos en que las medidas para la mitigación del cambio climático actualmente en vigor hagan también justicia a la urgente y necesaria conservación de la biodiversidad.

Desde sus comienzos, el Programa MAB ha perseguido iniciativas innovadoras en las áreas de la investigación, la supervisión, la educación y el fortalecimiento de capacidades, la gestión y la ejecución de proyectos modelos, que van más allá de la protección de la naturaleza y que son apropiados como paradigma para un



Conference participants in the exhibition hall

estilo de vida sostenible. Con tal propósito, las reservas de biosfera representan un elemento importante como garantía de una Tierra habitable para el futuro de las generaciones venideras.

Consideramos que las reservas de biosfera constituyen un elemento eficaz para la mitigación del cambio climático y representan un modelo para una adaptación a sus consecuencias. Ello es aplicable, sobre todo, en los ámbitos de la utilización sostenible de la tierra, las economías verdes, el afianzamiento de las prescripciones naturales de los ecosistemas, la eficacia energética y el empleo de las energías renovables. Son sitios de aprendizaje par el desarrollo sostenible.

En relación con los propósitos de la Estrategia de Sevilla (1995) y del Plan de Acción de Madrid (2008), los participantes en esta Conferencia exhortan a los Estados representados en el Programa MAB a que las reservas de biosfera sean consideradas con mayor intensidad en sus estrategias para la mitigación y adaptación al cambio climático y a favorecer el intercambio de información sobre los modelos desarrollados en las reservas de biosfera a otras regiones.

Sobre esta base, estimamos necesarias las siguientes medidas:

#### **A nivel político en los Estados miembros**

- (1) Prestar mayor consideración a los logros del Programa MAB y de las reservas de biosfera para la mitigación y la adaptación al impacto del cambio climático, así como integrar mejor sus aportaciones en las estrategias nacionales e internacionales.
- (2) Integrar con mayor intensidad la idea de las reservas de biosfera en las acciones de cooperación al desarrollo, respaldar los proyectos implementados

en los países en vías de desarrollo y asociar la lucha contra la pobreza con la conservación de la biodiversidad y la mitigación del cambio climático.

- (3) Crear condiciones y marcos jurídicos, administrativos e institucionales a nivel nacional y/o local para las reservas de biosfera, proporcionar a esas reservas las competencias correspondientes, así como garantizar una dotación financiera y de personal suficiente para las administraciones de dichas reservas, para que puedan así cumplir sus funciones.
- (4) Continuar impulsando las reservas de biosfera como regiones modelo para un desarrollo sostenible y hacer un uso lo más amplio posible de las buenas prácticas y experiencias obtenidas en ellas.
- (5) Apoyar la investigación aplicada, interdisciplinar y enfocada a la detección de problemas, así como la supervisión y la evaluación, incluyendo el conocimiento tradicional, en relación con el cambio climático y sus consecuencias en las reservas de biosfera, e integrar los resultados de éstas actividades en los programas y proyectos de investigación nacionales e internacionales.
- (6) Apoyar las innovaciones económicas y actividades que combinen la mitigación y adaptación al cambio climático con el mantenimiento de la integridad de los ecosistemas y la biodiversidad, así como también el desarrollo social, incluyendo las necesidades de las comunidades indígenas locales, en particular en los contextos de la extracción de recursos naturales y generación de energía.
- (7) Promover el rol del uso de la tierra en la reducción de carbono, en particular de los bosques a través de la implementación y evaluación del programa de



Delegates of 74 countries representing every continent came to Dresden

carbono voluntario REDD+ en las reservas de biosfera para incrementar el conocimiento sobre impactos, mercados y prácticas, así como también para desarrollar mejoras metodológicas y diseminar lo aprendido.

- (8) Promover la difusión del concepto de reservas de biosferas y los procesos que se requieren para tal fin.

### **A nivel práctico en las reservas de biosfera**

- (9) Reforzar los esfuerzos para desarrollar enfoques innovadores para la mitigación y adaptación al cambio climático (incluyendo modelos de financiación), aplicarlos de forma modélica, adaptar los planes de gestión en concordancia e integración con los actuales enfoques de desarrollo sostenible y aprovechar todo ello en beneficio de estas regiones.
- (10) Desarrollar y llevar a la práctica planes de gestión para la adaptación a un clima cambiante, basados en análisis de vulnerabilidad, teniendo en cuenta la conservación y la explotación sostenible de la biodiversidad, así como la participación de la población local.
- (11) Integrar los conocimientos tradicionales, indígenas y locales con los modernos avances científicos para reforzar la investigación en el ámbito del cambio climático.
- (12) Intensificar los esfuerzos para utilizar las reservas de biosfera como lugares de aprendizaje para el desarrollo sostenible, transmitiendo cómo la conservación de la biodiversidad sostiene el flujo de servicios de los ecosistemas y apoya la creación de oportunidades económicas.
- (13) Continuar desarrollando y reforzando la cooperación internacional para el intercambio de experiencias y métodos efectivos, así como de proyectos compartidos, en el marco del compañerismo.
- (14) Desarrollar e intensificar las asociaciones con el sector privado para identificar, desplegar y fomentar mercados regionales, nacionales e internacionales para productos y servicios producidos de forma sostenible, así como para impulsar una economía respetuosa con el clima en estas regiones.

### **A nivel de la UNESCO**

- (15) Apoyar y emplear ampliamente el Programa MAB y las reservas de biosfera de conformidad con la Estrategia de la UNESCO para el cambio climático y

de la Iniciativa de Cambio Global de la UNESCO, no sólo como espacio de referencia para la comprensión de las consecuencias del cambio climático. En particular en regiones específicamente demarcadas por la UNESCO, con prioridad en África y en los pequeños estados insulares en desarrollo.

- (16) Seguir desarrollando la red mundial de reservas de biosfera como uno de los activos centrales de la UNESCO, en calidad de regiones de referencia para una mejor comprensión de las consecuencias del cambio climático sobre la sociedad humana, para la diversidad cultural y biológica, las prestaciones de los servicios de los ecosistemas y el patrimonio natural y cultural mundial, y considerar la inclusión de las reservas de biosferas dentro de los programas interdisciplinarios de investigación globales sobre el cambio climático.
- (17) Fomentar el intercambio internacional de buenas prácticas y promover los hermanamientos Sur-Sur y Norte-Sur para compartir tecnologías y buenas prácticas.
- (18) Cooperar con otros programas y convenciones interestatales de la UNESCO y la ONU, en particular con las tres convenciones de Río, con el Decenio de las Naciones Unidas para la “Educación para el Desarrollo Sostenible”, así como con otras organizaciones e instituciones nacionales e internacionales relevantes, para que estas puedan aprovechar mejor las reservas de biosfera como regiones piloto y para la investigación y la educación en relación con procesos de sostenibilidad.
- (19) Respaldar a los Estados miembros, política y financieramente, en la identificación y gestión exitosa de nuevas reservas de biosfera, en particular de las transnacionales.

## **Conclusión**

Los participantes en la Conferencia apelan a que se faciliten los correspondientes medios financieros, organizativos y de personal para la aplicación de las recomendaciones contenidas en esta Declaración.

Los participantes en la Conferencia invitan al Consejo Internacional de Coordinación del Programa MAB a endosar esta Declaración en su vigésimo tercera sesión y a presentarla en la trigésima sexta Conferencia General de la UNESCO en el otoño de 2011.

# Dresdner Erklärung zu Biosphärenreservaten und Klimawandel

**Wir, die Teilnehmer der Internationalen Konferenz „Für das Leben, für die Zukunft: Biosphärenreservate und Klimawandel“, die am 27./28. Juni 2011 in Dresden stattfand, erklären:**

Der Klimaschutz und die Anpassung an den Klimawandel sowie der Schutz der biologischen Vielfalt gehören zu den zentralen ökologischen Herausforderungen der Gegenwart. Um ihnen gerecht zu werden, sind weltweit großer politischer Wille und entschlossenes Handeln notwendig. Das für einen Richtungswechsel notwendige Wissen und die entsprechenden Technologien sind vielfach vorhanden. Nun gilt es, die Ressourcen zu bündeln und Kreativität freizusetzen, um entsprechendes Handeln – einschließlich Verhaltensänderungen – hin zu einer nachhaltigen Entwicklung weiter zu verstärken.

Der Internationale Koordinierungsrat (ICC) des UNESCO-Programms „Der Mensch und die Biosphäre“ (MAB-Programm) trat 1971 zum ersten Mal zusammen und legte die Grundlagen für einen neuen Schutzgebietstyp „Biosphärenreservat“. Er erklärte die harmonische Entwicklung von Mensch und Natur zu dessen zentralem Ziel. Die Idee der Biosphärenreservate findet weltweit wachsende Zustimmung und hat sich über vier Jahrzehnte zu einer Erfolgsgeschichte entwickelt. Biosphärenreservate stellen ein weltweites Netz von Modellregionen dar, in denen sich neue nachhaltige Nutzungsformen und Möglichkeiten der Anpassung an sich verändernde ökologische, ökonomische und soziale Bedingungen unter Einbeziehung aller Akteure erproben lassen.

Das Weltnetzwerk von über 560 Biosphärenreservaten in mehr als 100 Ländern im Rahmen des UNESCO-Programms „Der Mensch und die Biosphäre“ (MAB) bringt seinen 40jährigen Erfahrungsschatz aus diesen Modellregionen in die weltweiten Strategien für Klimaschutz und Klimaanpassung ein. Ziel ist es, über den Erhalt der biologischen Vielfalt hinaus auch einen substanziellen Beitrag zu diesen Prozessen zu leisten. Wir erwarten, dass die weltweit laufenden Klimaschutzmaßnahmen auch dem dringend notwendigen Schutz der biologischen Vielfalt gerecht werden.

Das MAB-Programm hat seit seinem Bestehen innovative Ansätze in den Bereichen Forschung, Monitoring, Bildung und Kapazitätsaufbau, Management sowie bei der Umsetzung von beispielhaften Projekten verfolgt, die weit über den Naturschutz hinausreichen und als Modell für einen nachhaltigen Lebensstil geeignet sind. Damit stellen Biosphärenreservate ein wichtiges Element der Zukunftssicherung für nachfolgende Generationen dar.



An exhibition highlighted 28 climate change-related good practice case studies from the World Network of Biosphere Reserves

Biosphärenreservate sind ein wirksames Instrument zum Klimaschutz sowie zur modellhaften Anpassung an seine Folgen. Dies gilt vor allem in den Bereichen nachhaltige Landnutzung, umweltverträgliches und Ressourcen schonendes Wirtschaften, Sicherung von Ökosystemdienstleistungen, Energieeffizienz und Einsatz erneuerbarer Energien. Biosphärenreservate sind Bildungsorte für nachhaltige Entwicklung.

Unter Hinweis auf die Ziele der Sevilla-Strategie (1995) und den Aktionsplan von Madrid (2008) fordern die Teilnehmer der Konferenz die im MAB-Programm vertretenen Staaten auf, Biosphärenreservate stärker als bisher in ihren Strategien zu Klimaschutz und -anpassung zu verankern und in Biosphärenreservaten entwickelte Ansätze verstärkt auf andere Regionen zu übertragen.

Auf dieser Grundlage erachten wir folgende Maßnahmen für notwendig:

### **Auf politischer Ebene in den Mitgliedstaaten**

- (1) Die Leistungen des MAB-Programms und der Biosphärenreservate zur Begrenzung des Klimawandels und der Anpassung an seine Folgen stärker zu beachten und deren Beiträge in die nationalen und internationalen Klimastrategien und -politiken besser zu integrieren,
- (2) Die Idee der Biosphärenreservate verstärkt in die Entwicklungszusammenarbeit einzubinden und entsprechende Projekte in Entwicklungsländern zu unterstützen, die Armutsbekämpfung, Erhalt der biologischen Vielfalt und Klimaschutz miteinander verknüpfen,



- (3) auf nationaler und lokaler Ebene angemessene gesetzliche, administrative und institutionelle Rahmenbedingungen für Biosphärenreservate zu schaffen, sie mit entsprechenden Kompetenzen auszustatten sowie eine ausreichende finanzielle und personelle Ausstattung der Verwaltungen der Biosphärenreservate zur Erfüllung ihrer Funktionen zu gewährleisten,
- (4) die Biosphärenreservate als Modellregionen für nachhaltige Entwicklung weiterzuentwickeln und die dort gewonnenen guten Praxisbeispiele und Erfahrungen möglichst breit zu nutzen,
- (5) problemorientierte, interdisziplinäre und angewandte Forschung, Überwachung und Evaluierung, einschließlich traditionellen Wissens, in Bezug auf Klimaveränderungen und deren Folgen in den Biosphärenreservaten zu unterstützen und die Ergebnisse solcher Aktivitäten in nationale und internationale Forschungsprogramme und -projekte einzubinden,
- (6) innovative ökonomische Instrumente und Aktivitäten zu unterstützen, die Klimaschutz, Anpassung an den Klimawandel, Bewahrung der Integrität von Ökosystemen und biologischer Vielfalt, sowie soziale Entwicklung, einschließlich der Bedürfnisse von lokalen und indigenen Gemeinschaften, miteinander verbinden, insbesondere im Zusammenhang mit der Ausbeutung von Bodenschätzen und der Energieerzeugung,
- (7) die Rolle der Landnutzung bei der Kohlenstoffspeicherung zu fördern, insbesondere in Wäldern durch Umsetzung und Auswertung der REDD+ Initiative in Biosphärenreservaten. Dabei gilt es, das Verständnis ihrer Auswirkungen, Märkte und Praxis zu verbessern, sowie geeignetere Methoden zu entwickeln und entsprechende Erkenntnisse zu verbreiten,
- (8) die Idee der Biosphärenreservate und der dafür erforderlichen Umsetzungsmaßnahmen verständlicher zu kommunizieren,

### **Auf praktischer Ebene in den Biosphärenreservaten**

- (9) die Anstrengungen zu verstärken, innovative Ansätze für Klimaschutz und -anpassung (einschließlich Finanzierungsmodelle) zu entwickeln, sie beispielhaft umzusetzen, Managementpläne entsprechend anzupassen, sie mit bestehenden Ansätzen nachhaltiger Entwicklung zusammenzuführen und sie zur Stärkung der Regionen zu nutzen,
- (10) Managementpläne zur Anpassung an ein sich veränderndes Klima auf der Grundlage wissenschaftlicher Analyse zu entwickeln und umzusetzen.

Dabei sind der Erhalt und die nachhaltige Nutzung der biologischen Vielfalt unter Einbeziehung der lokalen Bevölkerung zu berücksichtigen.

- (11) traditionelles, indigenes und lokales Wissen mit modernen wissenschaftlichen Erkenntnissen zur Stärkung der Forschung im Bereich Klimawandel zusammenzuführen,
- (12) verstärkt Biosphärenreservate als Lernorte für nachhaltige Entwicklung zu nutzen, um darzustellen, dass der Schutz der biologischen Vielfalt die Bereitstellung von Ökosystemdienstleistungen sichert und neue wirtschaftliche Chancen schafft,
- (13) die internationale Zusammenarbeit zum Austausch von Erfahrungen und erprobten Methoden sowie für gemeinsame Projekte – auch im Rahmen von Partnerschaften – weiter zu entwickeln und zu stärken,
- (14) Partnerschaften mit dem Privatsektor zu entwickeln und auszubauen, um regionale, nationale und internationale Märkte für nachhaltig erzeugte Güter und Dienstleistungen zu identifizieren, zu entwickeln und zu fördern sowie eine Klima schonende Wirtschaftsweise in den Gebieten voranzubringen,

### **Auf Ebene der UNESCO**

- (15) das MAB-Programm und die Biosphärenreservate im Rahmen der UNESCO-Strategie zum Klimawandel und der „Global Climate Change Initiative“ der UNESCO umfassend zu unterstützen und zu nutzen, nicht nur als Referenzorte zum Verständnis der Folgen des Klimawandels, vor allem in den besonderen Zielregionen der UNESCO, wie Afrika und den kleinen Inselstaaten,
- (16) das Weltnetz der Biosphärenreservate als einen der zentralen Aktivposten der UNESCO weiter zu entwickeln: als Referenzregionen zum besseren Verständnis der Auswirkungen des Klimawandels auf die menschlichen Gesellschaft, für die kulturelle und die biologische Vielfalt, die Ökosystemdienstleistungen sowie für das Weltnatur- und -kulturerbe. Die Einbeziehung von Biosphärenreservaten in global koordinierte interdisziplinäre Forschungsprogramme zum Klimawandel ist zu prüfen.
- (17) den internationalen Austausch von bewährten Praxisbeispielen sowie Süd-Süd- und Nord-Süd-Süd-Kooperationen durch bilaterale Partnerschaften zum Austausch von Technologien und bewährten Praxisbeispielen zu fördern,



From left to right: June Marie Mow, Arnd Henze, Susanne Stoll-Kleemann, Sheila Ashong

- (18) mit anderen zwischenstaatlichen Programmen und Übereinkommen der UNESCO und der UN, insbesondere den drei Rio-Übereinkommen, der UN-Dekade „Bildung für nachhaltige Entwicklung“, der UN-Konferenz zu Nachhaltiger Entwicklung Rio+20 sowie anderen relevanten internationalen und nationalen Organisationen und Einrichtungen zusammen zu arbeiten, damit diese die Biosphärenreservate stärker als Forschungs-, Bildungs- und Pilotregionen für Nachhaltigkeitsprozesse nutzen,
- (19) die Mitgliedstaaten bei der Ausweisung und dem erfolgreichen Management von neuen – insbesondere von grenzüberschreitenden – Biosphärenreservaten, politisch und finanziell zu unterstützen.

### **Schlussfolgerung**

Die Teilnehmer der Konferenz rufen zur Bereitstellung entsprechender finanzieller, organisatorischer und personeller Kapazitäten für die Umsetzung der in der Erklärung enthaltenen Empfehlungen auf.

Die Teilnehmer der Konferenz bitten den Internationalen Koordinierungsrat des MAB-Programms, diese Erklärung auf seiner 23. Sitzung zu billigen und der 36. Sitzung der Generalkonferenz der UNESCO im Herbst 2011 vorzulegen.

# إعلان دريسدن حول محميات المحيط الحيوى و التغير المناخي

نحن، المشاركون في المؤتمر العالمي " للحياة، للمستقبل: محميات المحيط الحيوى و التغير المناخي " المنعقد في دريسدن في 27 و 28 يونيو/ حزيران 2011، نصدر الإعلان التالي:

إن الحد من التغير المناخي و التكيف معه و الحفاظ على تنوع الأحياء هي من أهم التحديات البيئية في الوقت الحاضر. إن التصدى لهذه التحديات يتطلب التزاماً سياسياً قوياً و عملاً حاسماً على مستوى العالم. و نحن نمثلك في حالات كثيرة ما يكفى من المعرفة و من التقنية ما يتيح تغيير مسار تطورنا إلى الأفضل. و يجب علينا الآن حشد مواردنا و إبداعاتنا لنزيد من تركيز عملنا من أجل تحقيق التنمية المتوازنة، و يشمل ذلك إجراء تغييرات في سلوكنا.

لقد انعقد مجلس التنسيق الدولي لبرنامج اليونسكو عن "الإنسان و المحيط الحيوى (الماب) (MAB)" لأول مرة عام 1971 و وضع الأسس لنوع جديد من المحميات – "محميات المحيط الحيوى". و أعلن أن هدفه الأساسي هو التنمية المتناغمة للإنسان و للطبيعة معاً. و لاقت فكرة محميات المحيط الحيوى قبولاً متزايداً في أنحاء العالم و نجحت نجاحاً كبيراً خلال العقود الأربعة الماضية. و تشكل محميات المحيط الحيوى شبكة عالمية من المناطق النموذجية يمكن فيها اختبار مختلف صيغ الاستخدام المتواصل للموارد و خيارات التكيف مع الظروف البيئية و الاقتصادية و الاجتماعية، و يشترك في اتخاذ القرار فيها كل أصحاب المصلحة.

إن الشبكة العالمية التي تضم أكثر من 560 محمية محيط حيوى في أكثر من 100 دولة و التي تشكلت ضمن إطار برنامج اليونسكو "الإنسان و المحيط الحيوى"، تضيف خبرة أكثر من 40 عاماً في المناطق النموذجية للتطوير المتواصل إلى التكيف و الحد من التغير المناخي، و تهدف إلى أن تساهم مساهمة جوهرية في هذه الآليات، بالإضافة إلى الحفاظ على التنوع الحيوى. و نتوقع أن تلبى الإجراءات الحالية

المتبعة لحماية المناخ العالمي الضرورات الملحة لحماية التنوع الحيوى و استخدامه المتواصل أيضاً.

لقد كان برنامج "الإنسان و المحيط الحيوى" منذ تأسيسه يتبع مقاربات مستحدثة في البحث والرصد و التعليم و تطوير المهارات الإدارية و في تنفيذ المشروعات النموذجية الريادية. و تتجاوز هذه المقاربات حماية الطبيعة إلى حد كبير و تصلح لأن تكون نماذج لأسلوب حياة مستدام. فمحميات المحيط الحيوى هي إذاً عنصر مهم لحماية الأرض، حتى تتمكن الأجيال القادمة من العيش عليها في أمان و سلام.

إن محميات المحيط الحيوى وسيلة مهمة للحد من الآثار الضارة للتغير المناخي المتوقع، و تصلح لأن تكون نماذج للتكيف مع هذه الآثار. و ينطبق ذلك على وجه الخصوص على مواقع الاستخدام المتواصل

للأرض و الأنظمة الاقتصادية الخضراء و خدمات حماية النظام البيئي و فعالية الطاقة و استخدام الطاقات المتجددة. إن محميات المحيط الحيوى هي في الحقيقة مواقع تعليمية للتطوير المتواصل.

و فيما يتعلق بأهداف خطة إشبيلية الاستراتيجية (1995) و خطة عمل مدريد (2008)، فقد ناشد المشاركون في المؤتمر الدول المشاركة في برنامج "الإنسان و المحيط الحيوى" أن تولي اهتماماً أكبر بمحميات المحيط الحيوى ضمن خططها للحد من الأثار الضارة للتغير المناخي و التكيف له، و أن تنقل المقاربات التي تم تطويرها في محميات البيئة الحيوية إلى مناطق أخرى كي تستفيد منها.

بناءً على ذلك نعتبر أن الإجراءات التالية مطلوبة:

أولاً: على المستوى السياسي في الدول الأعضاء

(1) التركيز بشكل أكبر على إمكانيات برنامج "الإنسان و المحيط الحيوى" و محميات المحيط الحيوى، من أجل الحد من أثار التغير المناخي و التكيف معها و تحسين دمج مساهماتهم في الخطط و السياسات المناخية المحلية و العالمية.

(2) دمج فكرة محميات المحيط الحيوى بشكل أكبر في التعاون في مجال التطوير و دعم المشاريع المماثلة التي تربط بين القضاء على الفقر و الحفاظ على التنوع الحيوي و حماية المناخ في الدول النامية.

(3) تكوين أطر تشريعية و إدارية و مؤسساتية مناسبة لمحميات المحيط الحيوى على المستوى الوطني و/ أو المحلي و إمدادها بمهارات مناسبة و توفير تمويل مناسب و موظفين لإدارة محميات المحيط الحيوى و ممارستها لوظائفها.

(4) العمل على الزيادة من تطوير محميات المحيط الحيوى بصفتها مناطق نموذجية للتنمية المتواصلة و نشر الممارسات الجيدة و الخبرات المكتسبة على أوسع نطاق ممكن.

(5) دعم البحث العلمي التطبيقي المتعدد الاختصاصات الذي يركز على المشاكل و دعم الرصد و التقييم، بما في ذلك المعلومات التقليدية، و ذلك بخصوص التغير المناخي و آثاره على محميات المحيط الحيوى، و دمج نتائج هذه النشاطات في برامج و مشاريع البحث المحلية و العالمية.

(6) دعم الوسائل و النشاطات الاقتصادية المستحدثة التي تجمع بين الحد من التغير المناخي و التكيف له و الحفاظ على سلامة الأنظمة البيئية و التنوع الحيوي، بالإضافة إلى التطوير الاجتماعي الذي يشبع احتياجات المجتمعات المحلية و الأهلية، و خاصة في سياق استخراج الثروات الطبيعية و توليد الطاقة.

(7) تعزيز دور استخدام الأراضي في انبعاثات ثاني أكسيد الكربون و خاصة في الغابات، من خلال تطبيق و تقييم برنامج الكربون الاختياري REDD+ في محميات المحيط الحيوى لتحسين

المعرفة حول الآثار والأسواق والممارسات وكذلك تطوير طرق محسنة ونشر الدروس المستخلصة.

(8) تعزيز تواصل أكثر إدراكاً لمفهوم محميات المحيط الحيوى و الإجراءات المطلوبة لذلك.

ثانياً: على المستوى العملي في محميات المحيط الحيوى

(9) تكثيف الجهود لتطوير مقاربات مستحدثة للحد من التغير المناخي و التكيف له (بما في ذلك نماذج تمويل) و تطبيق تلك المقاربات و تهيئة خطط الإدارة وفقاً لذلك و دمجها مع مقاربات التطوير المتواصل الموجودة مسبقاً و استخدامها لتقوية المناطق الضعيفة.

(10) تخطيط و تنفيذ خطط إدارة للتكيف مع المناخ المتغير بناءً على تحليل متعمق للتأثر مع الأخذ بالحسبان الحفاظ على التنوع الحيوي و استخدامه الاستخدام المتواصل و بمشاركة السكان المحليين.

(11) دمج المعلومات التقليدية و الشعبية و المحلية و النتائج العلمية الحديثة لتقوية البحث العلمي في مجال التغير المناخي.

(12) تكثيف الجهود لاستخدام محميات المحيط الحيوى بصفتها مواقع تعليمية للتطوير المتواصل لنشر فكرة أن الحفاظ على التنوع الحيوي يقوي خدمات النظام البيئي و يدعم إيجاد فرص اقتصادية.

(13) زيادة تطوير و تعزيز التعاون العالمي بخصوص تبادل الخبرات و الطرق الفعالة و المشاريع المشتركة – ضمن مجال الشراكة أيضاً.

(14) تطوير و تعزيز الشراكة مع القطاع الخاص من أجل تعريف و تطوير و دعم الأسواق المحلية و الوطنية و العالمية للمنتجات و الخدمات المتواصلة و تعزيز الخدمات الاقتصادية المفيدة للمناخ في هذه المناطق.

ثالثاً: على مستوى اليونسكو

(15) الدعم و الاستخدام الكامل لبرنامج "الإنسان و المحيط الحيوى" و محميات المحيط الحيوى بالتوافق مع خطط و مبادرة اليونسكو للتغير المناخي، بصفتها مواقع مرجعية لفهم أفضل لآثار التغير المناخي و على وجه الخصوص في مناطق مستهدفة من قبل اليونسكو و الأولوية لأفريقيا و للدول النامية الواقعة على جزر صغيرة.



Ursula Heinen-Esser greeting the conference participants

(16) زيادة تطوير الشبكة العالمية لمحميات المحيط الحيوى بصفتها واحدة من مصادر قوة اليونسكو وبصفتها مناطق مرجعية لفهم أفضل لآثار التغير المناخي على المجتمعات الإنسانية و على التنوع الثقافي و الحيوي و خدمات النظام البيئي و التراث العالمي الطبيعي و الثقافي، و مراعاة محميات المحيط الحيوى في برامج البحوث العالمية المنسقة بين مختلف الاختصاصات حول التغير المناخي.

(17) رعاية التبادل العالمي لأفضل الممارسات و دعم الشراكات الجنوبية-الجنوبية و الشمالية-الجنوبية-الجنوبية في تبادل التقنيات و أفضل الممارسات من خلال التوأمة.

(18) التعاون بين الحكومات في إطار برامج و اتفاقيات اليونسكو و الأمم المتحدة و خاصة اتفاقيات ريو و عقد تعليم الأمم المتحدة للتنمية و مؤتمر الأمم المتحدة للتطوير الأساسي (ريو +20) و منظمات و وكالات محلية و عالمية أخرى بحيث يستفيدون أكثر من محميات المحيط الحيوى بصفتها مناطق بحثية و تعليمية و ريادية للعمليات التنموية الاستثمارية.

(19) دعم الدول الأعضاء سياسياً و مالياً في تحديد و حسن إدارة محميات المحيط الحيوى الجديدة و خاصة المحميات المتجاوزة للحدود.

#### الخاتمة

يدعو المشاركون في المؤتمر إلى توفير إمكانيات ملائمة بخصوص توفير التمويل و التنظيم و الموظفين من أجل تنفيذ التوصيات الواردة في هذا الإعلان.

يدعو المشاركون في المؤتمر مجلس التنسيق الدولي لبرنامج "الإنسان و المحيط الحيوى" إلى المصادقة على هذا الإعلان في جلسته الـ 23 و تقديمها في الجلسة الـ 36 للمؤتمر العام لليونسكو في خريف 2011.

## 德累斯顿生物圈保护区和气候变化宣言

主题为“为了生命，为了未来：生物圈保护区和气候变化”国际会议于 2011 年 6 月 27 日和 28 日 在德国德累斯顿举行，我们诸位与会者谨此声明：

减缓气候变化、适应气候变化和保护生物多样性被列入当今世界主要环境挑战之列。迎接这些挑战，需要强有力的政治承诺和全世界的果断行动。在许多情况下，我们已经拥有了可以改变我们的发展道路的知识和技术。现在我们必须调动我们的资源和创造力，进一步推进可持续发展，包括改变我们的行为方式。

联合国教科文组织国际“人与生物圈”计划（MAB）协调理事会会议于 1971 年首次召开，为一种新型的保护地生物圈保护区奠定了基础。它宣称“人与自然和谐发展”为其主要目标。生物圈保护区的构想在全球范围内得到了越来越多的支持，并且在过去的四十年中获得了巨大的成功。由模范区域生物圈保护区组成了一个全球网络，在这个网络里，可持续利用的形式以及为适应不断变化的生态、经济和社会条件所做出的方案，都可以得到检验，并且所有利益相关者都能参与。

位于 100 多个国家的 560 多个生物圈保护区所构成的全球网络，是在联合国教科文组织人与生物圈计划的框架内建立的，它把过去 40 年里模范区域内及相关推动可持续发展方面积累的经验贡献到减缓和适应气候变化中，并在除了保护生物多样性、对缓解和适应气候变化做出重大贡献。我们希望，目前的全球气候保护措施也能满足保护生物多样性和可持续利用的迫切需要。

人与生物圈计划自实施以来，在研究、监测、教育和能力建设、管理以及实施示范项目方面一直追求方法创新。这些方法不仅仅用于自然保护，而且非常适合作为可持续生活方式的模型。因此，生物圈保护区是为后世子孙维护一个宜居地球的重要举措。

生物圈保护区是减缓气候变化的有效工具，并且能够充当适应这种变化所带来的影响的示范。这尤其适用于土地的可持续利用、绿色经济、维护生态系统服务、节能和可再生能源利用等领域。生物圈保护区是可持续发展的学习地。

关于塞维利亚战略（1995）和马德里行动计划（2008）所制定的目标，与会者呼吁人与生物圈计划的各国代表在各自国家的减缓和适应气候变化战略中给予生物圈保护区的较大的考虑，并将生物圈保护区内形成的措施应用到其他的区域。





Uriel Safriel intervening during a panel discussion

在此基础上，我们认为应采取以下措施：

在国家政策层面上

- (1) 更加注重人与生物圈计划和生物圈保护区在减缓和适应气候变化影响方面的能力，并努力将它们的贡献融入国家和国际气候变化战略和政策中。
- (2) 将生物圈保护区的构想更多地融入到发展合作中，并支持发展中国家与消除贫困、保护生物多样性以及气候保护相关的项目。
- (3) 就生物圈保护区，在国家 and 地方层面，建立适当的立法、行政和体制框架，赋予它们一定的权限，并为生物圈保护区的行政管理和职能提供足够的资金和工作人员。
- (4) 将生物圈保护区进一步发展成可持续发展的示范区，并尽可能广泛地推广已有的良好实践和经验。
- (5) 支持以问题为导向、跨学科和应用性的研究、监测和评估，这其中包括与气候变化及其对生物圈保护区的影响有关的传统知识，并且把这些活动的成果纳入国家和国际研究计划和项目。
- (6) 支持将减缓和适应气候变化与维护完整的生态系统和生物多样性，以及社会发展（包括当地社区和原住民的需求）相结合的

创新型经济手段和活动，特别是开发自然资源和能源的过程中。

- (7) 促进土地利用在碳汇中作用，特别是有关森林类型的生物圈保护区通过森林实施和评估REDD+自愿性碳计划，深入学习影响、市场、实践以及制定改进方法和传播汲取的经验教训。
- (8) 促进更多生物圈保护区理念的沟通、交流并促进各种活动以达到上述目的。

在生物圈保护区的实践层面上

- (9) 努力开发减缓、适应气候变化（包括融资模式）的创新方法并实施，采取相应的管理计划，将它们与现有的可持续发展方针相结合，并利用这些计划加强这些地区的保护工作。
- (10) 制定和实施管理计划时要与气候变化相适应，并且要在脆弱性分析的基础上，将生物多样性保护和可持续利用以及当地居民的利益考虑在内。
- (11) 融合传统，本地和地方知识以及现代科学成果，加强气候变化研究。
- (12) 努力利用生物圈保护区作为可持续发展学习的地，对生物多样性保护如何能维持生态系统服务功能的运行并支持创造经济机会这一话题开展交流。



Conference participants during the evening reception in the royal castle “Residenzschloss” in Dresden

- (13) 进一步发展和加强国际合作，分享经验和有效方法和项目合作包括在伙伴关系框架内。
- (14) 发展和加强与企业的伙伴关系，以便认定、发展和促进可持续性生产的产品及服务的地方、国家和国际市场，并推动这些地区的气候友好型经济活动。

在联合国教科文组织层面上

- (15) 按照教科文组织提出的应对气候变化的行动倡议，全面支持和利用人与生物圈计划以及生物圈保护区，不仅仅将其作为更好地了解气候变化影响的场所，特别是联合国教科文组织特别关注的一些区域，优先非洲及小岛屿发展中国家。
- (16) 进一步将生物圈保护区全球网络发展为教科文组织的核心工作之一：作为参考地以更好地了解气候变化对人类社会、文化和生物多样性、生态系统服务功能以及世界自然和文化遗产的影响，考虑将生物圈保护区纳入到全球、协调、跨学科、有关气候变化的研究计划。
- (17) 促进有关最佳实践的国际交流，并通过“结对”促进“南南”和“北南南”在技术共享和最佳实践方面的伙伴关系。
- (18) 加强与教科文组织和联合国其他计划和公约的合作，特别是三条里约公约，联合国十年教育可持续发展计划，联合国可持续发展里约+20 的大会，以及其他相关的国际组织和国家机构，以便他们更多地利用这些生物圈保护区作为促进可持续发展进程研究、学习和试点地区。
- (19) 政治上和财政上支持会员国提名和成功管理新的生物圈保护区，特别是跨界保护区。

结语

与会者呼吁提供足够的财力、人力和组织力量，实现本《宣言》所提的建议。

与会者特请人与生物圈计划国际协调理事会在其第 23 届会议上批准这一宣言，并将其提交给教科文组织于 2011 年秋季召开的第 36 届会议。

## Дрезденская Декларация по биосферным заповедникам и изменению климата

**Мы, участники международной конференции «Ради жизни, ради будущего. Биосферные заповедники и изменение климата», состоявшейся в Дрездене 27 - 28 июня 2011 г., принимаем следующую Декларацию:**

Уменьшение изменений климата, адаптация к изменениям климата и сохранение биологического разнообразия являются сегодня ключевыми вопросами, касающимися изменений окружающей среды. Умение противостоять этим изменениям требует проявления политической воли и решительных действий по всему миру. В определенных случаях мы уже обладаем знаниями и технологиями для изменения пути своего развития. В настоящий момент нам необходимо мобилизовать наши ресурсы и творческие подходы с целью интенсификации усилий по обеспечению устойчивого развития, включая изменения в нашем поведении.

Международный координационный совет программы ЮНЕСКО «Человек и биосфера» (МАБ) был впервые создан в 1971 г. и положил начало созданию нового типа охраняемых территорий - биосферных заповедников. Ключевой целью было объявлено обеспечение гармоничного развития человека и природы. Идея создания биосферных заповедников была встречена с растущим одобрением по всему миру, а за прошедшие четыре десятилетия у нее появилось огромное количество сторонников. Биосферные заповедники представляют собой глобальную сеть модельных регионов, где могут быть протестированы устойчивые формы существования и развития с учетом адаптации к изменяющимся экологическим, экономическим и социальным условиям при участии всех заинтересованных групп.

В настоящее время эта сеть, созданная в результате реализации программы ЮНЕСКО «Человек и биосфера», насчитывает свыше 560 биосферных заповедников в более чем 100 странах мира и является результатом накопленного за 40 лет опыта работы в этих модельных регионах и с ними – работы, направленной на устойчивое развитие в условиях изменения климата и адаптации к этим изменениям, целью чего является внесение важного вклада в изучение данных процессов, а также в сохранение биологического разнообразия. В настоящее время мы надеемся на принятие глобальных мер по защите климата, чтобы также иметь возможность удовлетворить насущные потребности сохранения биологического разнообразия и его устойчивого использования.



Conference participants during a coffee break

С самого начала реализации программы ЮНЕСКО «Человек и биосфера» преследовались цели инновационных подходов к исследованиям, мониторингу, образованию и созданию необходимого потенциала для этого, а также менеджмента модельных проектов на данных территориях. Эти подходы выходят далеко за рамки обычных попыток сохранения природы, и их можно использовать в качестве моделей экологически устойчивого образа жизни. Таким образом, биосферные заповедники являются важным элементом в системе сохранения жизни на нашей планеты, которая должна остаться пригодной для проживания будущих поколений.

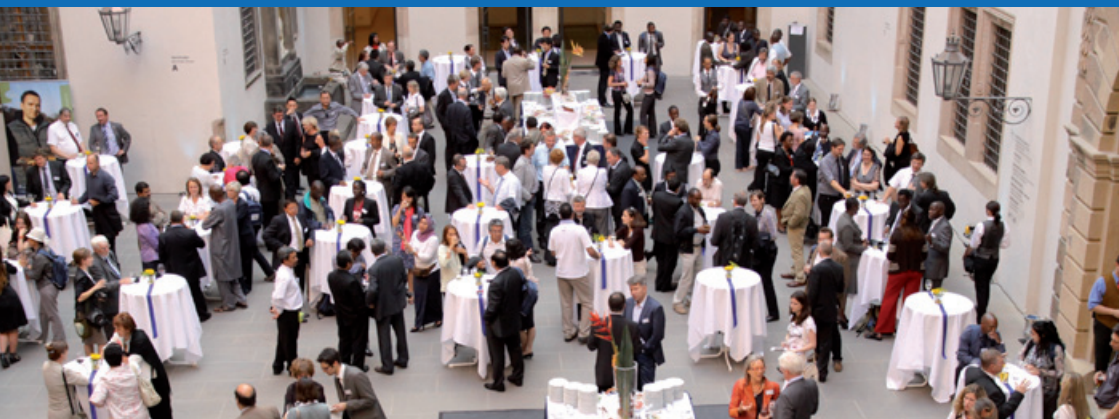
Биосферные заповедники являются эффективным инструментом минимизации климатических изменений и служат моделями адаптации к вызываемым этими изменениями последствиям. Это, в частности, выражается в экологически рациональном использовании земель, «зеленой экономике», сохранении экосистемных услуг, энергоэффективности и использовании возобновляемых источников энергии. Биосферные заповедники – это территории для изучения возможностей устойчивого развития человечества.

Ссылаясь на цели Севильской стратегии (1995 г.) и Мадридского плана действий (2008 г.), участники конференции призывают представленные в программе ЮНЕСКО «Человек и биосфера» страны уделить больше внимания биосферным заповедникам при осуществлении стратегий по минимизации последствий изменения климата и адаптации к ним, а также обеспечить использование опыта, накопленного биосферными заповедниками, в других регионах.

Основываясь на этом, мы полагаем необходимым принятие следующих мер:

## На политическом уровне государств-членов

- (1) Уделять больше внимания возможностям программы ЮНЕСКО «Человек и биосфера» и биосферным заповедникам для минимизации климатических изменений и адаптации к вызываемым этими изменениями последствиям, а также способствовать интеграции этого опыта в национальные и международные программы, связанные с изучением изменений климата.
- (2) Придавать идее создания биосферных заповедников большую значимость в программах сотрудничества с целью дальнейшего развития и оказывать поддержку аналогичным проектам, связанным с ликвидацией бедности, сохранением биологического разнообразия и защите климата в развивающихся странах.
- (3) Обеспечить необходимую законодательную, административную и организационную поддержку на национальном и/или местном уровне в отношении биосферных заповедников, предоставить им соответствующие условия для работы, обеспечив средствами и персоналом, необходимыми для управления и обеспечения их деятельности.
- (4) Продолжить дальнейшее развитие биосферных заповедников в качестве модельных территорий для обоснования устойчивого развития и распространять накопленные знания и опыт как можно шире.



Evening reception in the inner courtyard of the royal castle “Residenzschloss” in Dresden

- (5) Поддерживать проблемно-ориентированные, междисциплинарные и прикладные исследования, мониторинг и оценку, включая традиционные знания, в отношении климатических изменений и вызываемых ими последствий, накладывающих отпечаток на биосферные заповедники, и интегрировать результаты этой деятельности в национальные и международные исследовательские программы и проекты.
- (6) Оказывать поддержку инновационным экономическим инструментам и видам деятельности, которые сочетают в себе минимизацию климатических изменений и адаптацию к ним с поддержанием интеграции экосистем и сохранением биологического разнообразия, а также социальным развитием, включающим в себя потребности местных и аборигенных общин, в частности, в отношении добычи природных ресурсов и получения энергии.
- (7) Придавать большее значение роли землепользования в сокращении выбросов углерода, в частности, на лесных территориях, посредством добровольного внедрения и использования в биосферных заповедниках программы REDD+ , чтобы улучшить знания в отношении ущерба от изменений климата экологии, рынкам и экономике, а также внедрять усовершенствованные методы и распространять накопленный опыт.
- (8) Содействовать дальнейшему улучшению понимания концепции биосферных заповедников и осуществить мероприятия, необходимые для полной реализации программы.

### **На практическом уровне в биосферных заповедниках**

- (9) Интенсифицировать усилия по развитию инновационных подходов, направленных на минимизацию климатических изменений и адаптацию к ним (включая разработку финансовых моделей), внедрить эти подходы и осуществить соответствующие уточнения управленческих планов и их интеграцию в действующие подходы к устойчивому развитию территорий, а также использовать их для развития экономики регионов.
- (10) Скорректировать и внедрить управленческие планы в соответствии с адаптацией к изменениям климата, основываясь на анализе уязвимых мест и учете важности сохранения и устойчивого использования биологического разнообразия, с включением в этот процесс местного населения.



Conference participants exchanging ideas

- (11) Объединять традиционные знания и опыт местного населения с современными научными данными для углубления исследований в области изменения климата.
- (12) Интенсифицировать усилия по использованию биосферных заповедников в качестве «опытных площадок» для устойчивого развития, что относится как к поддержанию биологического разнообразия, и обеспечению экосистемных услуг, так и к созданию возможностей для экономического развития территорий.
- (13) Продолжать развитие и укрепление международного сотрудничества для обмена опытом и эффективными методами работы, включая создание совместных проектов в рамках партнерства.
- (14) Развивать и усиливать партнерские связи с частным сектором с целью выявления, развития и предоставления местных, национальных и международных рынков для продуктов и услуг, получаемых с учетом требований устойчивого развития, и для внедрения на данных территориях тех экономических видов деятельности, которые благотворно влияют на климат.

### **На уровне ЮНЕСКО**

- (15) Всесторонне поддерживать и использовать программу ЮНЕСКО «Человек и биосфера» и биосферные заповедники в соответствии со Стратегией ЮНЕСКО по действиям, связанным с изменениями климата, и Инициативой ЮНЕСКО по вопросам изменения климата, и не только в качестве источника данных для лучшего понимания последствий, вызываемых изменениями климата, в частности, в регионах, которым ЮНЕСКО уделяет особое внимание, в первую очередь, в Африке, а также в отношении малых островных развивающихся государств.



- (16) Осуществлять дальнейшее развитие мировой сети биосферных заповедников, как одной из ключевых программ ЮНЕСКО: в качестве модельных территорий для лучшего понимания воздействия последствий изменения климата на сообщества людей, культурное и биологическое разнообразие, экосистемные услуги, всемирное природное и культурное наследие, и рассмотреть включение биосферных заповедников в глобальные, скоординированные междисциплинарные программы по изменению климата.
- (17) Поощрять международный обмен лучшими результатами практической деятельности между Югом-Югом и Севером-Югом-Югом и содействовать обмену технологиями и лучшими практическими результатами посредством создания соответствующих партнерских объединений.
- (18) Продолжать участие в иных межправительственных программах и соглашениях ЮНЕСКО и ООН, в частности, в трех, принятых в Рио-де-Жанейро конвенциях, в Десятилетии ООН по образованию для устойчивого развития, в Конференции ООН по устойчивому развитию (Рио+20) и других мероприятиях, организуемых международными и национальными организациями и агентствами, с тем, чтобы расширить использование биосферных заповедников для исследования и обучения, и в качестве модельных территорий для обоснования подходов, необходимых для устойчивого развития.
- (19) Оказывать политическую и финансовую поддержку государствам-членам при создании и для успешного управления новыми биосферными заповедниками, в особенности, трансграничными заповедниками.

## **Заключение**

Участники конференции призывают выделить достаточные финансовые средства, а также принять необходимые организационные меры, включающие в себя обеспечение необходимым персоналом, для претворения в жизнь рекомендаций, содержащихся в настоящей Декларации.

Участники конференции предлагают Международному координационному совету программы ЮНЕСКО «Человек и биосфера» одобрить настоящую Декларацию на 23 сессии Совета и представить ее на 36 сессии Генеральной Конференции ЮНЕСКО осенью 2011 г.







UNESCO Director-General Irina Bokova greeting the participants

## Conference proceedings

### Welcome by the German government

The welcome speech of the conference “**For life, for the future. Biosphere reserves and climate change**” was delivered by the representative of the host government, Ms **Ursula Heinen-Esser**, Parliamentary Secretary of State at the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, on the morning of 27 June 2011. Her speech was entitled “The necessity of a global pact for biodiversity and climate change mitigation”.

Ursula Heinen-Esser welcomed all representatives from the World Network of UNESCO biosphere reserves,

and from other functions within the “Man and the Biosphere” (MAB) Programme. She expressed her sincere recognition for UNESCO’s visionary foresight in creating the programme 40 years ago. She said: “Today, the MAB Programme is known worldwide as an innovative instrument for the implementation of the idea of sustainable development. Over the years, the ‘classical’ task of nature conservation, which focused primarily on species preservation and habitat protection, did not get lost, but was rather sensibly extended and supplemented by tasks such as sustainable economic development, regional development, education for sustainable development and much more.”

“It’s good to know that there are so many regions on our planet – which are the UNESCO biosphere reserves – in which it becomes possible in a very practical way to harmonize economic development with the needs of the natural environment with and for people; thus, without overexploitation and without questioning our livelihoods. However, unfortunately, the progressive loss of biodiversity worldwide has not come to a halt yet” she said.



State Secretary Ursula Heinen-Esser

Thus, she called for efforts to give greater visibility in the public sphere to the grand challenge of biodiversity loss; with the hope to be at least partly as successful as with the recent efforts to provide visibility to climate change. “There are many arguments for pooling forces and resources for both goals” and “the world network of biosphere reserves can play a key role in this respect”, said Ursula Heinen-Esser.

“Of course, there is also cause for conflict. I think we don’t need to conceal this. This is less about financial resources but more about practical questions such as land-use. In Germany, we feel the friction very clearly at the moment, because we are at the dawn of a new era of energy production – shifting from nuclear power to renewable energies in a historically unique short time. After the nuclear accident in Fukushima, the necessity to move towards a sustainable supply of energy has become obvious. However, that means that we need additional land for the cultivation of biomass as well as for the creation of wind and solar power. In sum, this must not go at the expense of biological diversity.” She added: “Only with successes in both climate change mitigation and biodiversity we will advance significantly towards sustainable development.”

With a view to UNESCO’s role, she said: “A big merit of UNESCO is that, through facilitating partnerships of the North with the South, of developed countries with less developed countries, it makes an important contribution to greater justice, to benefit-sharing, to more international fairness between the rich and the poor. Germany is involved here to a large extent, not only in the context of its development aid. The Federal Ministry for the Environment has for example been involved in setting up two biosphere reserves in Ethiopia and certainly these won’t be the last projects in Africa.”

In the central part of her welcoming

message Ursula Heinen-Esser suggested agreeing on a global pact for biodiversity and climate change mitigation as a contribution to the UN Decade for Biological Diversity, which had just started. Its objectives are also those reflected in the draft of the “Dresden Declaration”, the final document to be discussed and adopted during the conference. She proposed that such a pact could include different measures.

One of these would be to agree on promoting sustainable low-carbon land-use, for example by organic farming and nature-oriented forest management. A second measure could be to focus more on regional food supply chains in order to preserve the existing cultural landscape, but also to minimize transport distances for reducing CO<sub>2</sub>-emissions from vehicles. Another measure that parties of this global pact should agree on is to significantly reduce the use of land for settlements and infrastructure in order to curb further sealing of soil. Yet another component of the pact would be to organize know-how transfer for effective water management to countries affected by desertification, as well as to forge closer cooperation between the UNESCO MAB Programme, the UN Convention on Biological Diversity (CBD) and the UN Framework Convention on Climate Change (UNFCCC).

Finally, the State Secretary called for a solid financial basis for the implementation of these measures at the

national and international level. Germany would like to lead by example. The country has already earmarked funds from the “International Climate Initiative” (IKI) of the Ministry for the Environment for projects to protect global biodiversity and to use it sustainably.



UNESCO Director-General Irina Bokova

## Welcome by UNESCO

The second welcome speech was delivered by **Irina Bokova**, Director-General of UNESCO. In her address she reminded the conference participants that they were meeting on the occasion of the 40<sup>th</sup> anniversary of the “Man and the Biosphere” Programme; a flagship of UNESCO’s work in the sciences – “driving our contribution to the debate on sustainable development, underpinning our policies to respond to the pressures of climate change. The Man and the Biosphere Programme has come a long way in forty years.”

“This programme was pioneering in 1971; it remains so today.” She reasserted: “Managing the biosphere means managing the relationship between human development and the environment. It means understanding and acting on the symbiosis between natural ecosystems and social and economic processes. It means grasping the inter-dependence between biological and cultural diversity. The World Network of Biosphere Reserves embodies UNESCO’s commitment to identifying these linkages, to reconciling the conservation of biological and cultural diversity with social and economic processes, to developing new responses to climate change mitigation and adaptation.”

The Director-General recalled that the “Man and the Biosphere” Programme was not born whole – nor were the biosphere reserves. Both have evolved significantly over the last forty years. “Biosphere reserves are today strategic locations for studying, identifying and implementing climate change policies – across the full range of ecosystems, from mountains, marine, coastal and island areas, tropical forests, drylands and urban areas to savannahs and agro-ecosystems. These are the only UN designated areas dedicated to responding to climate change on the lines of intergovernmentally-agreed principles. The 40<sup>th</sup> anniversary calls on all of us to discuss how to make far more use of these strategic tools.”

She quoted the United Nations Secretary-General, Mr Ban-Ki moon, who

had referred to climate change as ‘the defining issue of our era’. This is why she, as Director-General of UNESCO, had launched in 2009 the UNESCO Climate Change Initiative designed to reinforce the “UNESCO Strategy for Action on Climate Change”: “This Climate Change Initiative draws on the work of our core programmes. These include our leadership in Education for Sustainable Development, the UNESCO Climate Change Adaptation Forum, and UNESCO’s research programme on the social, human, ethical and gender dimensions of climate change. The Man and the Biosphere Programme and the World Network of Biosphere Reserves have a privileged role to play. Biosphere reserves provide ideal platforms to take forward climate change education, research and monitoring, public debate and private sector partnerships.”

She continued: “This is why biosphere reserves are joining with relevant UNESCO World Heritage Sites to form a global climate change field observatory of UNESCO sites. The observatory promotes networking and information-sharing on the impacts of climate change on human societies, on the world’s natural and cultural heritage, and on biodiversity and ecosystems services. It identifies adaptation and mitigation strategies that are effective at the local and regional levels. This embodies for me the unique role UNESCO’s site-based networks play in the United Nations system. It highlights also the complementarity among different types of

sites. While World Heritage helps to preserve values, biosphere reserves are helping to create them. Placing environmental conservation in the context of development with and for people, I am convinced biosphere reserves must become leading instruments for promoting sustainable development”, Irina Bokova underlined.



The audience during the key note speeches

The Director-General also made reference to the Rio+20 conference in June 2012. She reminded the audience that sustainable development requires profound changes in our ways of thinking, deciding, consuming and producing. She also expressed her credo that this revolution is not one of those made overnight. Ms Bokova said that the World Network of Biosphere Reserves can play a major role in this revolution to build a greener society. “Now for 40 years, UNESCO biosphere reserves form a unique network of observation of our planet. They have collected and

shared an amount of good practice, know-how and local knowledge on the complex links between people and their environment. This is a unique treasure. It must be disseminated to the general public and to policy makers.”

She also reaffirmed that biosphere reserves should be given the means to develop new mechanisms for mitigating climate change, such as carbon markets and innovative financing mechanisms to fight against the consequences of deforestation and forest degradation in developing countries. The conference in Dresden was aimed at exploring in detail the case of climate change in biosphere reserves and the means to cope with it. She thanked the German authorities not only for hosting the conference and the subsequent session of the MAB International Coordinating Council, but also for having compiled good practice case studies on the issue of biosphere reserves and climate change and their presentation in a publication and an exhibition. (Irina Bokova’s full speech: <http://bit.ly/r6OdKN>)

### **First keynote speech**

After these two welcoming messages, Mr **Luis Fueyo MacDonald** presented the first of three keynotes. As head of the Mexican National Commission of Natural Protected Areas, he stated that for his country both biosphere reserves and climate change rank as high priorities. Both require joint efforts of a variety of sectors. The recent Conference of Parties to the UNFCCC (COP 16), hosted by Mexico in



Cancún in December 2010, had restored the confidence in international institutions and multilateralism; since then, chances to reach an international agreement on global problems have increased, said Luis Fuego. Cancún has made clear that not only governments but society at large is challenged. Talks had been enriched by different parties, e.g. indigenous people, civil society, businessmen and -women, academics, scientists, legislators and the media. In his opinion, the agreements of Cancún form the basis to implement very substantial efforts to reduce emissions, although there is still work to be done. In the end of 2011, in South Africa, negotiations shall be continued in order to reach a reliable international agreement.

Luis Fuego also broached the divide between the North and the South: While the major global economies through technological solutions might stand up to the challenges of climate change, developing countries will suffer for certain from its effects. It is thus necessary to develop strategies permitting countries of the South to adapt to the severe consequences of climate change.

For him, conservation of biodiversity is the most effective measure for climate change adaptation. In addition, allowing ecosystems to adapt offers viable economic options for the rural population. Biosphere reserves are especially relevant in this regard, he said. Only integrated approaches to both biodiversity management and cli-



Luis Fuego Mac Donald

mate change will permit to reduce the rate of biodiversity loss. Such approaches would also create other benefits to the environment and to the human population and also for the implementation of international agreements.

“UNESCO biosphere reserves are natural laboratories for the implementation of sustainable development: they offer examples of adaptation based on ecosystems in order to spread innovative solutions which can be adopted on a global level. Biosphere reserves are places for sustainable development based on the participation and local approval and on respect for the natural heritage, for landscapes and the population that lives inside. Biosphere reserves are also centres of exchange between national and international stakeholders about the conservation of biodiversity and sustainable management of natural resources. Therefore, they need

to be included in financing systems dedicated to studies concerning the effects of climate change adaptation and mitigation measures” said Luis Fuego. The National Commission of Natural Protected Areas in Mexico has launched a “Climate change strategy for protected areas” as an instrument for direct climate change adaptation and mitigation actions in these areas. All this needs to be done because the costs caused by climate change are higher than those of mitigation. Therefore we need parallel measures: the implementation of policies by all levels of government and by society as a whole, the development of a legal framework and sufficient, appropriate and accessible funding.



Ursula Heinen-Esser and Irina Bokova

He finally highlighted that in the context of climate change there are now new opportunities to foster international cooperation.

## Second keynote speech

**H.E. Mohamed Aslam**, Minister for Housing, Transportation and Environment of the Maldives, presented the second keynote speech. His stirring contribution was entitled “Biosphere reserves and climate change in Small Island States”. He believes that we live in one of the most challenging times ever: “Climate change is the biggest threat to mankind at present and in the future; we have never seen anything like this before. The earth has seen many changes in its climate. It has seen many warm periods and many glacial periods. It has seen many events of mass extinction of species. But what we are living through right now is different from what had happened in the past.”

Minister Aslam emphasized that humans are causing the current global warming. “The scientific community firmly believes that we are living through the beginning of another mass extinction as a result of climate change. That should be a warning for us. I have read some articles which say that 50 percent of the species existing today will be extinct by the end of 2100. That should be an alarm for us” said Minister Aslam.

“The human population is predicted to rise from 7 billion at present to 10 billion by the end of 2100; and us not being successful, I don’t want to call it failure, not being successful in reaching a global agreement on mitigating climate change year after year; we are a part of this destruction! And one

of the countries, who would face this destruction first, would be my country; the Maldives. And many small island nations like the Maldives.”

Minister Aslam was worried that with Europe having lived through two very cold winters, Europeans might begin to doubt climate change. “But don’t be naïve. Climate change is not just about warming, but about many changes in the climate.” Most models do not predict what happens beyond certain tipping points. There will be no smooth transition, he warned. “There are so many uncertainties, so many things that we cannot predict.”

“Human beings are a very greedy species. We consume a lot more than we need. We have overexploited the natural resources of our earth. In the Maldives, we are experiencing this as I speak. We fish a lot more than the oceans can regenerate. We have seen a decline of at least 40 percent in our fishing income in the Maldives over the last five years. I don’t know whether I can directly correlate this to overexploitation or to climate change. But if we compare the facts that we currently observe: erosion of the islands, less fish catch, salt water intrusion, unpredictable weather patterns, bleaching of the coral reefs; if we compare that with what was predicted when we started talking about climate change, the answer is very clear and obvious: There is a perfect match!”

Climate change is no longer a question of scientific research for the minister; it is a subject for action for the survi-



Minister Mohamed Aslam

val of mankind, based on entitlements. “We are a small island state with just 300,000 people, much smaller than many cities in Germany. But we do have rights; we do have our say in the global community. So we do speak on this subject with authority. We fight for our rights on this subject, and we are not ashamed of that. We fight for our survival and in doing so, we are not here just to tell to you what you need to do, we are here to lead by example. When we do that, we are hoping that you will follow us” Minister Aslam declared.

He informed the audience about the Maldives’ intention to be carbon-neutral by the end of 2020. “Some of you might think that the Maldives have gone mad, that the technology doesn’t exist yet. But we don’t think so. When mankind wants to achieve something, it can be really innovative. The technology is advancing. You

didn't wait until the turbo engine was perfect to bring trains on track. You brought trains on track with steam engines. In the same manner, we want to start right now. And when the Maldives can do it, people will say: If it can be done in a small community like the Maldives, it can be done elsewhere."



The audience listening to keynote speeches.

Minister Aslam concluded by outlining the expected benefits of the first UNESCO biosphere reserve in his country, the Baa Atoll, one of the 22 atolls of the Maldives, beyond strengthening sustainable tourism and sustainable fishery: "We already have carried out a full assessment of the biosphere, of the natural resources. This already is a significant advance." In closing he expressed his hope that establishing this first biosphere reserve should contribute to the survival of small island states such as the Maldives and eventually of humanity.

### Third keynote speech

**H.E. Dessie Dalkie Dukamo**, Minister for Science and Technology of Ethiopia, spoke in his keynote about "Managing challenges of biosphere reserves in Africa". He kicked off by saying: "Today, the Man and the Biosphere Programme of UNESCO is more relevant for sustainable development than ever before. This is because the world today faces even more challenges, such as biodiversity loss, climate change and poverty." Addressing these issues in parallel are the most relevant pillars of the work of biosphere reserves in Ethiopia.

"Ethiopia is part of every map depicting priority areas of global biodiversity conservation, like Biodiversity hotspots, Endemic bird areas, Centres of plant diversity, or Centres of origin and diversity of crop plants. Over 200 species of crop plants used in agriculture have been domesticated in Ethiopia. 38 globally important food crops have their primary and secondary centres of diversity in our country." Therefore the Ethiopian government places a special emphasis on the conservation and sustainable use of its biodiversity.

Protected areas of different types cover more than 15 percent of Ethiopia. Since 2010, the country has its first two UNESCO biosphere reserves, Yaju and Kafa as the birthplace of *Coffea arabica*. "There are a number of more sites that are important for conservation and development in the country. The approval of these first

two biosphere reserves has motivated different local administrations and the central government to focus much more on sustainable development and natural resource management based on the UNESCO MAB concept.”

Minister Dukamo then referred to climate change as a challenge particularly relevant to Africa as one of the most vulnerable regions: “Climate change is a major threat to sustainable growth and development, and the achievement of the Millennium Development Goals. Africa is particularly vulnerable because of its overdependence on rain-fed agriculture, compounded by factors such as widespread poverty and weak capacity.” He called for continued support to help Africa cope with the effects of climate change. He emphasized Africa’s entitlement to increase its energy supply, and develop clean energy sources.

“Even if global carbon emissions were reduced tomorrow, Africa would still be faced with the massive challenge of adapting to climate change. Adaptation requires massive investments in infrastructure, agricultural practices and other economic sectors of the continent.” What he thus expects is the following: “It is time now to fill the financial gaps and enable Africa to respond to the effects of climate change through supporting national adaptation strategies.” Dukamo finished his keynote saying: “Climate change needs to be seen not only as environmental concern, but as a growing threat to sustainable development and poverty



Minister Dessie Dalke Dukamo

reduction.” He welcomed that attention to climate change is increasing, in general and in Africa in particular.

### Wrap-up session

A wrap-up session with the three keynote speakers and **Dr Natarajan Ishwaran**, Secretary of the UNESCO MAB Programme, completed the first morning session; the moderator of this session as of all subsequent sessions was the German TV moderator **Mr Arnd Henze**. The theme of the 20-minutes discussion was “Biosphere reserves as implementation instruments for climate change policy”.

Arnd Henze started by asking Natarajan Ishwaran about the factors keeping the MAB Programme young and avant-garde after 40 years of existence. Natarajan Ishwaran emphasized that the biosphere reserve concept has continuously evolved over the years: In the 1970ies, they used to be areas

for conservation and research with only some minor efforts at community involvement. Over the years and culminating in 1995 in the adoption of the Seville Strategy at the 2<sup>nd</sup> World Congress of biosphere reserves, they have reinvented themselves as landscapes dedicated to sustainable development; this new approach was subsequently implemented at national level. In 2008, at the 3rd World Congress, the Madrid Action Plan was adopted and new objectives such as addressing climate change and urbanization have been accepted as being objectives of biosphere reserves.



The audience listening to the wrap-up session

“The network, its conceptualization and its action keep evolving. We constantly improve the conceptual basis of the biosphere reserve network in order to take on contemporary challenges” Natarajan Ishwaran said. “Since we do not have the solution for climate change today, we must find solutions

in practice; for this we should use the biosphere reserves. This network is ideally suited for research, learning and testing of new approaches.”

The moderator then asked the panel if the community committed to the conservation of the biodiversity is the same as the one committed to climate change - or whether there are two discourses not yet united. Luis Fuyeo provided an optimistic outlook saying that the two communities are converging, because of the growing recognition that conservation of biodiversity will be one of the most powerful instruments for climate change adaptation and mitigation, at least in the short term. According to his experiences, the people living in biosphere reserves have already fully understood the connection between the two discourses: conserving their ecosystems and their natural resources is also key to fight climate change. These communities would rather be surprised to learn that at the political level, there are disjoint discourses.

Next, the discussion focussed on MAB in developing countries, on the example of Ethiopia. Has Ethiopia been able to build on 40 years of experience of the MAB Programme when starting to work with the biosphere reserve concept in 2010? According to Minister Dukamo, his country has learnt a lot from the MAB Programme, especially new strategies for environmental protection and sustainable development. Yet he stressed that this is only one aspect, since through each new bio-

sphere reserve the MAB Programme acquires a wealth of new experience which is fed back into the programme. “Our two new biosphere reserves pay particular attention to involving the community. I think this is done in an exemplary fashion. We have been learning from past experience from biosphere reserves but we are also searching and finding new ways.”

Minister Dukamo further expanded why three “pillars” have been defined for the work of the Ethiopian biosphere reserves: fighting poverty, fighting climate change and conserving biodiversity. The reason is that from the Ethiopian perspective, these three areas of work cannot be separated. “Without poverty alleviation, sustainable development and conservation cannot be achieved: if people are poor, they cut down trees and destroy biodiversity. You must integrate these issues from the outset; there is no sustained conservation without poverty reduction.” To people living in the region, it is obvious that these three “pillars” go hand in hand. In order to remain convinced under changing circumstances, the biosphere reserve concept is ideal. But the local people have to have a clear benefit from the biosphere reserve. It has been learnt early on in this process: “Providing economic alternatives is important for conservation.”

Taking further the idea of a developing network, Arnd Henze asked Minister Aslam what would be the specific contribution of the proposed biosphere



Participants of the wrap-up session moderated by Arnd Henze

reserve of the “Baa Atoll” to the MAB Programme and whether the Maldives plan to take a lead role in MAB. Minister Aslam answered that “leading by example” for him means that the Maldives will not get caught in the “game of blaming each other”.

He continued: “The biosphere reserve is going to demonstrate to the people in our country that our economy crucially depends on two important industries, tourism and fisheries. They both depend on the coral reefs and their biodiversity. The biosphere reserve enhances the value of our ‘product’ and the two industries need to become closer attached to the destination; we need to establish sustainable fisheries for the population. For us, the biosphere reserve is an economic case: the attitude we are taking is not just a conservation issue but also about sustainable economic development. People must understand and feel their

benefit. The era of forbiddance is over! In the modern age, we need to take a positive outlook.”



Prof. Dr. Chung-II Choi, MAB ICC chairman

In a next step, Arnd Henze elaborated on how biosphere reserves work as a network. He asked the panellists how biosphere reserves, each of them being unique, may learn and benefit from each other. Natarajan Ishwaran said that “at the global level, the network provides benefits through exchange of experiences and ideas – like we do here.” In more concrete terms, there are strong regional networks within the world network such as the IberoMAB network, AfriMAB or EuroMAB. In Asia and the Pacific, there are even several networks. Even more concretely there is exchange between individual biosphere reserves through numerous partnerships. In conjunction with the current conference and the ICC in Dresden, biosphere reserve

representatives from Vietnam, Japan and Korea had visited the German biosphere reserve Rhön to see how in this biosphere reserve the local economy is stimulated and local governance is improved. All ICC delegates would visit the German biosphere reserve “Heath and pond landscape of Upper Lusatia” later that week to obtain insight into the work of UNESCO biosphere reserves in Germany. Natarajan Ishwaran reminded the audience that since 1995 any biosphere reserve nomination without the explicit support of the residents will not be accepted by UNESCO. “The biosphere reserves of today have many residents and demonstrate how people can sustainably use a given area and how sustainable use can be improved and supported. It is especially important to create wealth as a necessary condition for sustainability in a particular space.”

Minister Aslam added that today conservation has become an economic issue for communities in the Maldives. “We are not going to dissociate the community from the area of the biosphere reserve. We have done campaigning within the community how useful and beneficial the biosphere reserve is going to be for them. When you declare an area a biosphere reserve, the campaign of convincing people might take a long time – because often people are reluctant to changes, seeing the proposal as an outside intervention. But it is essential to bring people on board and make them part of the process – we have done this quite well, I think.”



The final question to this first panel addressed experiences from biosphere reserves on conflicts of interests between the economy on one side and conserving biodiversity and fighting global warming on the other. Natarajan Ishwaran emphasized that between different human beings, there will always be conflicts of interests; a special competence of UNESCO biosphere reserves consists in managing and negotiating such conflicts.

At the same time, and especially compared to forty years ago, the corporate community, whether it is the oil and gas sector, mining or tourism, is much more ready to engage in discussions on improved environmental management practices, contributions to biodiversity conservation etc. “People such as us with an environmental background are sometimes too suspicious.” The biosphere reserves can contribute to the wider debate in the political arena through many ways, starting by good practice examples, he added. “Through analysis and writing up case studies in a way that people can understand, i.e. what worked, what did not work, contributes to improving how things are done elsewhere.”

## AFTERNOON SESSION OF 27 JUNE

### Welcome by the Prime Minister of Saxony, Stanislaw Tillich

The afternoon session was kicked off with a message of greeting by **Stanislaw Tillich**, Prime Minister of the Free State of Saxony. That UNESCO was celebrating the 40<sup>th</sup>



Prime Minister Stanislaw Tillich

anniversary of the MAB Programme in the city of Radebeul right outside the Saxon capital Dresden, was deemed a great honour by Prime Minister Tillich. “It was during the last 40 years that the sometimes problematic relationship between man and the biosphere has been put on the global agenda. All this has started with the foundation of the MAB Programme in 1971.” Mr Tillich continued: “Today, signs are unmistakable that the biosphere is being exploited beyond certain tipping points – and we human beings are thus destroying our own livelihoods. According to UNEP, global economic output has doubled from 1981 to 2005, but at the same time more than 60 percent of ecosystems have either been destroyed or overexploited.”

In the main part of his intervention, Prime Minister Tillich focused on the Saxon efforts in climate change mitigation. He said that the state govern-

ment is convinced that the Saxon contribution can be quite substantial. An important measure had been to commission a regional climate model resulting in various scenarios for the future climate development. He told the audience that all these scenarios predict an average temperature rise of 2 to 3 degrees with considerably declining precipitation and more extreme weather events in this part of Germany along the border to Poland and the Czech Republic. “It is obvious that all of us will be directly or indirectly affected by climate change. More frequent droughts will influence the conditions for agriculture and silviculture. Changing climatic conditions will also change the habitats of flora and fauna.”

Prime Minister Tillich approached climate change also from a perspective of economic benefits: Saxon companies today are leading in soil and mine reclamation, in wastewater technology and environmental sensor technology. Such technologies and processes combine economic and ecological benefits and serve as incentive to pursue ambitious goals in climate change mitigation. “Still, taking into account all economic drivers of innovation in environmental technology, we must organize the structural change carefully. We may not risk another massive de-industrialization such as the one witnessed in Eastern Germany following the collapse of communism in 1989.”

He finished by stating: “The MAB Programme and the biosphere reser-

ves, these model regions for sustainable development, have been successful in demonstrating especially one thing over the last 40 years: how to assemble all relevant actors around a table and build consensus for sustainability – and to find solutions and ways of transformation not only on a national but on a global level. I am thus very grateful and consider it highly adequate that this conference has convened here in Saxony to discuss the future of the MAB Programme in times of climate change. I wish you good luck, good ideas and strong partners.”

### **Introduction of the Dresden Declaration**

A short technical session introducing the draft of the “Dresden Declaration” was the next item on the agenda of the conference. The declaration as a joint statement of its participants was expected to be the main outcome document and key result of the conference. Prof Dr Chung-Il Choi, Chair of the MAB ICC, and Dr Miguel Clüsener-Godt of the MAB Secretariat informed the participants about the objectives of adopting the text and the main elements of its content. They also suggested modalities for submitting amendments to the text.

### **First panel discussion Climate change adaptation and mitigation through land use**

Facilitated again by Arnd Henze, the following experts participated in the discussion: **Prof Dr Rattan Lal**, Professor of Soil Science at Ohio State University, USA, **Prof Dr Martin**

**Price**, UNESCO Chair in Sustainable Mountain Development at Perth College, UK, and **H.E. Jorge Jurado**, Ecuador's Ambassador to Germany.

Arnd Henze started by laying out some of the main conflicts of interests in this area: Today, more arable land needs to be farmed because of the need for higher harvest yields for the global economy and a growing population. However, natural ecosystems store high amounts of carbon and their preservation is a significant contribution to climate change mitigation. Second, traditional, low-yield but low-carbon forms of land-use are replaced by more modern, high-carbon methods of cultivation. Third, climate change inevitably leading to changes in vegetation, there is an open question as to net global effect on vegetation being neutral or negative – vegetation lost in

one area might re-develop in another. Can we rely on nature to adapt or does it need active human interventions to support adaptation and especially preserve biodiversity?

Ambassador Jurado started the discussion from the perspective of a specific challenge and specific proposal for climate change mitigation. He stated that in Ecuador the pressure on pristine ecosystems is not mainly by an expansion of agricultural areas; but that there is a very different pressure, even more intimately connected to climate change, exerted on the UNESCO biosphere reserve Yasuni in Ecuador – a region in the Amazon basin with a very high biodiversity. Large oil reserves have been found some years ago below this precious ecosystem. The government has set up an initiative that would preserve biodiversity, while

**Main message of H.E. Jorge Jurado to the Conference:**

Yasuni National Park is considered one of the places with the greatest biodiversity on earth. It was created in 1979 and designated a UNESCO biosphere reserve 1989. It spans 982,000 ha in the upper basin of the Napo River in the western Amazon region.

In 2007 the President of Ecuador announced to the UN General Assembly Ecuador's commitment to keeping reserves of 846 million barrels of oil, 20 percent of the country's reserves, in the ITT field (Ishpingo-Tambococha-Tiputini), located in Yasuni, indefinitely unexploited. In exchange, the President proposed that the international community make a financial contribution of at least 3,600 million dollars, the equivalent of 50 percent of the figure that the State would earn from these oil reserves. A trust fund has been opened for this purpose, managed by UNDP. The capital in the fund will be invested exclusively in the development of renewable sources of energy. Interest earned will be invested in effective conservation and prevention of deforestation, reforestation, afforestation and natural regeneration, social development in areas covered by this initiative and enhanced energy efficiency.

The Yasuni-ITT Initiative will avoid the emission of 407 million tons of CO<sub>2</sub>. This reduction is greater than the annual emission of countries such as Brazil or France.

This innovative option fights global warming, protects biodiversity in Ecuador and support for the voluntary isolation of the uncontacted indigenous cultures living here, promotes social development, nature conservation and the implementation of renewable energy sources, within a strategy seeking to consolidate a new model of equitable and sustainable development in the country.

Contributions to the Yasuni-ITT Initiative will come from friendly countries, international organizations, NGOs, companies, as well as from citizens of Ecuador and the world.

at the same time generating income for the Ecuadorian people.

“We propose to the world: We will not and do not want to develop these oil reserves in order to preserve the biodiversity; not only for Ecuador, but for mankind. This contributes to mitigating climate change by foregoing the burning of a certain amount of fuel and thus keeping out of the atmosphere huge amounts of CO<sub>2</sub>. For a country in urgent need of financial resources for its development, this is a substantial contribution to climate change mitigation.”

The ambassador further explained how the initiative is supposed to work: “We have set up a trust fund last year with the help of the UNDP. With the help of this fund, Ecuador must first and foremost organize a national energy revolution – launching renewable energy – in order that we can reduce our very own dependence on fossil fuels.” Ecuador appeals to governments

and other institutions of industrialized countries to contribute to this fund. Although so far only US\$ 40 million have been collected, he expressed his hope that the Yasuni initiative will not turn out to be too advanced for the current world.

The question was raised how the population can be convinced to support this initiative. “How do you convince your own population not to pursue a sudden increase in wealth, but rather to invest long-term into the transition to sustainable energies?” Ambassador Jurado emphasized the need to prove that a certain new form of development really is taken serious and can work. “If you cannot show that, nobody believes it.” He highlighted that it had been significant that Yasuni had already been designated as UNESCO biosphere reserve, “because it is not only a national park but a territory internationally recognized for its high ecosystem value.” Jorge Jurado added that for him sustainable development

**Main message of Martin Price to the Conference:**

Mountain areas cover a quarter of the Earth’s land surface, and a quarter of the global population lives within or immediately adjacent to them. Mountain areas provide many goods and services to a very large proportion of the global population, notably freshwater, but also natural resources such as minerals, wood and food. They are also major centres of biodiversity, often in protected areas, and key destinations for tourists. The importance of many mountains is also indicated by their sacred status.

Mountain ecosystems, and the people who depend on them, are particularly sensitive to the impacts of climate change, both gradual change and change related to extreme events. Almost two-thirds of all biosphere reserves are in mountain areas, although their distribution across the world’s mountains is very uneven.

With regard to understanding climate change and its impacts, mountain biosphere reserves present a significant potential for cooperative activities within regional and global networks. With regard to adapting to climate change, the cooperative approach espoused for biosphere reserves is particularly important in mountain areas, particularly with regard to addressing competing demands for land and resources driven by population movements and changes in the areas available for both human use and biodiversity conservation.

not only is a question of preserving. “We must return to an exceptional concept, the limits of growth. We wish to contribute to realizing this concept. We are deliberately not exploiting 20 percent of our oil resources, and that will probably slow our growth and our development. But we are optimistic that this self-limitation will help us to find entirely new ways.” In this sense, the Yasuní initiative can be a model for other regions facing similar conflicts of interests.

As an addition from the audience, Ahmed Senhoury from IUCN in Mauretania shortly presented a project similar to the Yasuní initiative, aiming at conserving marine and coastal areas in West Africa including biosphere reserves and national parks. Answering another question from the audience about the stability of the initiative across government changes, Jorge Jurado said that all payments to the fund are already recognized by law as contingent debt and are therefore securitized. He confirmed another intervention from a participant from the Congo that he deems it reasonable to refrain from oil exploration in the first place to avoid aggravating conflicts of interests.

Ute Stoltenberg, member of the German MAB committee, added from the audience her hope that the discussion about Yasuní will bring new quality to the perception of biosphere reserves. “A different kind of growth’ is a very important term; we should seriously deliberate its implications for bios-



Moderator Arnd Henze and Prof Dr Martin Price

phere reserves. They do not only add an economic dimension to the conservation of nature; they also include a social and cultural dimension; good human life is at the heart of the concept of biosphere reserves.”

Jorge Jurado confirmed that the Yasuní initiative is doing exactly this, helping to preserve the livelihoods of several hundred indigenous people, who have chosen to live in isolation. Uriel Safriel from Israel welcomed the mentioning of the limits of growth as well and asked what growth model the MAB Programme should propagate. In answering, Jorge Jurado shortly referred to the Ecuadorian concept of “buen vivir” as an alternative to Western lifestyles.

Rattan Lal commented on this initiative from a North American perspective, where the consumption of natural resources is one of the

highest in the world: “It is quite well known today that we would need six planets if everybody in the world were to use natural resources as we do. We urgently need to change our attitude. We need to meet the basic requirements of life, and we still have to work hard for fulfilling the human rights to food and energy of the 1 billion people who are hungry today. Sustainable development is about meeting the basic requirements and human rights of 7 billion today and 9 billion in 2050.” In this regard, Martin Price underlined the importance of education to slow down population growth.



Prof Dr Rattan Lal

Returning to the conflict of preserving high-carbon ecosystems in times of increasing need for more agricultural land and resources, Rattan Lal emphasized three thrusts: we have to make all efforts at preserving all remaining high-carbon ecosystems such as rainforests or peat-bogs; we have to

restore degraded ecosystems in order for them to store more GHG; and thus we have to double food production on existing agricultural areas. Therefore, on fuels, there is no alternative than to increase energy efficiency: “Is biofuels an option to replace fossil fuel? I think the answer is no, neither growing biomass on degraded land, neither using agricultural byproducts, neither all other current proposals.” He combined this rejection with the demand to substantially increase carbon sequestration in the biosphere. Rupert Baber from the South African Waterberg biosphere reserve asked whether biosphere reserves should promote biochar production which becomes interesting in their game reserves due to thickening vegetation. Rattan Lal answered that once biochar production can be done economically this is to be supported; but he did not consider it – as any other individual proposal – to be a panacea: “There are no universally applicable solutions.”

The moderator asked Martin Price why facts about the enormous value of ecosystems in storing greenhouse gases are known so little; as an example he quoted the fact that central European peat-bogs may store more CO<sub>2</sub> than tropical rain forests. In other words: Is there a new case for nature conservation sufficient to create political majorities? Martin Price answered: “The case is already made today from an economic perspective. Private landholders in the possession of moorlands are now in fact regarding them as a business opportunity.” Pre-

**Main message of Rattan Lal to the Conference:**

An enormous amount of carbon is stored in the soils of the world. The total soil carbon pool of about 2,500 Gigatons is about 3.2 times that in the atmosphere and 4.5 times that in the biota.

Conversion of soils from natural to agro-ecosystems depletes the carbon pool, and the rate and magnitude of depletion is aggravated by accelerated erosion and other degradation processes.

Most agro-ecosystems soils have lost 30 to 50 percent of the antecedent carbon pool.

Land use and management practices which deplete the soil organic pool include soil drainage, tillage, and residue removal. Yet, the soil organic pool can again be enhanced by restoring degraded agricultural lands and by adopting agricultural practices that are favourable for carbon and nutrient budgets, such as conversion to no-till farming, retaining crop residue mulch, applying compost and manure, incorporating cover crop in the rotation cycle, agro-forestry systems, or improved pastures with controlled grazing at a low stocking rate.

The rate of soil carbon sequestration in cropland soils ranges between 100 and 1,000 kg per hectare per year. This rate is generally higher in soils under cold and humid climate conditions.

Increasing carbon sequestration in depleted and degraded soils also enhances their quality, improves agronomic productivity, and increases other ecosystem services. The total technical potential of carbon sequestration in the terrestrial biosphere is 2.6-5.0 Gigatons carbon per year for the next 50 to 100 years, equivalent to draw down about 50 ppm of atmospheric CO<sub>2</sub>.

This is a win-win and a cost-effective bridge to the future until low or no carbon fuel sources are usual.

...  
serving and not digging up moorlands is now seen as something that can be traded. “Very much like what Ecuador is trying to achieve for the rainforest. In such cases national governments as land owners understand the need to conserve. In the case of moorlands, there is an additional challenge: as the temperature of the earth increases, we will get more emissions from them as we dig them up, in contrast to trees absorbing more carbon. This can end up in a vicious circle so we need to minimize climate change.”

Martin Price then broached another issue concerning land-use, stating that there are alternatives to increase the yield than just using more fertilizers: “There are good ways to establish virtual circles to produce more yield; for example to combine agriculture with agroforestry and fishery.” Intelligent virtual circle can be created when fish in ponds are fed residues from

agriculture. “But there is an urgent need to train farmers in that regard.” Regarding the need to produce more food for the future world population, Rattan Lal said that yields could be increased dramatically in many areas of the world such as Sub-Saharan Africa where food production has stagnated for decades; thus there would be no need to convert additional land into arable land. The challenge is to implement the available knowledge into practical policies; it is not a question of science, but of translation of scientific knowledge and of political will. He appealed to politicians finally to take up the increase of agricultural productivity as a serious priority.

Martin Price added that biosphere reserves really are model regions and should stress this better. “I like one phrase even more to be applied to biosphere reserves: ‘sites of excellence’. That means they are the best

places on earth to do certain things.” However, biosphere reserves need to better present their achievements in areas such as climate change adaptation and mitigation. A start had been made by the publication and exhibition on good practice accompanying the Dresden conference.

At the Rio+20 conference in June 2012 in Brazil, the major themes will be Green Economy and effective institutions for sustainable development. “In these two areas biosphere reserves have been working for a long time; these are new words for old stories. Rio+20 really can be an opportunity for biosphere reserves to strongly assert: ‘We are doing these things.’ Not every biosphere reserve is doing things perfectly, but there are lots of good examples.”



Ambassador Jorge Jurado

Rattan Lal suggested to think more seriously about payments for ecosystem services as alternative to development

aid as hand-out, which according to him has created wrong incentives, dependencies and corruption. “To reward a community that safeguards some ecosystem services, e.g. preserving carbon in soil or increasing biodiversity, this is only just and appropriate.” Biosphere reserves can be pilots in this regard as well. In many cases green agriculture at the same time provides ecosystem services and thus should be rewarded.

Martin Price drew a line to his own research on mountain regions which provide major ecosystem services, especially freshwater: “If these regions are well-managed, freshwater will be delivered in high quality and at times suitable for consumption and not in the form of floods.” However, it is particularly mountain ecosystems that are endangered by climate change. He added that the mountains are also regions of high biodiversity like in Ethiopia. “Still regions such as the Andes or Ethiopia present an opportunity to look for crops which are very high in yield, are nutritious, and may help in feeding well the future world population. Our existing food crops will not necessarily do the job.”

Uriel Safriel from Israel suggested developing a very differentiated perspective at payments for ecosystem services in biosphere reserves according to the zonation scheme; Rattan Lal agreed that this is a good way of promoting sustainable development; he emphasized that payments for ecosystem services have to be transparent



and fair. He provided the example that under current policies farmer receive far less compensation per ton CO<sub>2</sub> for optimizing carbon sequestration in agriculture than what is paid for compensation in industrial markets. He called upon UNESCO to promote fair compensation for carbon sequestration through agricultural practice.

The moderator finished this first panel discussing how biosphere reserves can become laboratories of best practice on adapting to changing vegetation patterns. Martin Price underlined that from a practical point of view, climate change is always mixed up with many other changes taking place such as demographic change; at the same time every landscape is different. It is especially with regard to societal mechanisms that biosphere reserves can make a difference: “Getting people to actually work with each other, to understand the need to cope with a changing situation. There is a real opportunity for biosphere reserves, because from an institutional point of view the fundamental basis of a biosphere reserve is cooperation between different stakeholder groups. They provide an ideally suited space to define: ‘Who can work together with whom to make better things happen?’ In each place it will be a different set of circumstances, a different set of stakeholders. But if the institutions are good and flexible, it will work.” He commended the research work of Professor Susanne Stoll-Kleemann from Germany as being outstanding in supporting better institutions. “Biosphere



Prof Dr Luis Aragón

reserves lead people towards working with each other, towards thinking about their long-term future and the future of their environment.”

### **Second panel discussion Renewable energies, green economies and carbon offsets**

After a coffee break, a second panel discussion addressed the topic Renewable Energies, green economies and carbon offsets. Arnd Henze welcomed on stage **Prof Dr Luis Aragón**, the UNESCO Chair in South-South Cooperation in Belém in Brazil, **Mr Uwe R. Fritsche** of the Institute for Applied Ecology in Darmstadt in Germany, **Mr Ivo Mulder** of the UNEP Finance Initiative and **Ms Phillia Restiani**, member of the REDD+ task force of the President of Indonesia.

The discussion was kicked off with two sets of questions: How can

**Main message of Luis Eduardo Aragón to the Conference:**

Initiatives to conserve natural ecosystems in developing countries tend to focus on the ecological values of landscapes. Most such initiatives neither originate from the population affected, nor do they necessarily meet their often pressing livelihood needs. Biosphere reserves are schemes of conservation and development searching to reconcile both. The experience of biosphere reserves are an important asset for conservation and development initiatives in the Amazon; a region with a critical role because of its enormous natural resources and position in relation to climatic change, demanding strong cooperation across the nine countries concerned; also a region where communities are becoming more aware of their rights, demand participation in the formulation and implementation of policies, and in sharing in the benefits from these policies.

The eleven Amazonian biosphere reserves are implementing the project “Sustainable rural development and conservation of biodiversity in the biosphere reserves of the Amazon”. This project focuses on identifying ways to improve the quality of life of the population in these biosphere reserves; conservation of biodiversity is achieved through strengthening their capacities for a rural development that add value to their products.

This demands the use of modern technologies adequate to the humid tropics, meaning significant scientific and technological innovations able to transform and valorize natural resources, aggregating value making them economically competitive, without destroying the forest. The UNESCO Chair coordinates this project in the framework of the Madrid Action Plan.

renewable energies be promoted and implemented in different contexts, cultures and economies? What can be the role of biosphere reserves in promoting renewable energies?

Luis Aragón answered that the progress towards renewable energies today is obvious in developed countries. It is now paramount to bridge the gap between these countries at the forefront of renewable energies and the developing world. Since developing countries often have much more opportunities in this regard (sun, water, wind, biomass), this process will be particularly interesting and important. “It is about building capacity for research and capacity to take up new opportunities” said Luis Aragón. Uwe Fritsche added: “We need a lot of experiments to find appropriate ways to promote renewable energies. Circumstances are different, even within a country. There is no master

plan for the earth to do the necessary great transformation. But there is also one untapped resource: the creativity of people.” He affirmed that experiences and opportunities vary not only between countries but also within countries; and there are just as huge differences between northern and southern Brazil as it is the case in a much smaller country like Germany. A crucial challenge however is that people dealing with the same challenges often hardly know about promising approaches in other places.

Uwe Fritsche continued: “What we need to do: become more inclusive, more open for ideas and concepts of other people; at the same time allowing people to turn their ideas into a business. One example is ecosystem services, mentioned in the previous panel; getting paid for implementing renewable energies and also for improving energy efficiency.” While

there is already a market for energy, the problem is that this market is not a level playing field—fossil fuels and nuclear energy are directly or indirectly subsidised. “One important issue is to open up these markets, creating new opportunity for people in making this a business case.” A second important issue is that beyond the globalized market place for energy, there are rural markets, where people don’t have access to energy at all. “We need a bottom-up strategy for the energy transition in the rural, disconnected markets; this change needs to take place just as well. Otherwise we will leave out 2 billion people and we leave out 2 billion opportunities – and this is unacceptable.” In this regard, Uwe Fritsche sees an important opportunity for UNESCO biosphere reserves in testing how to combine cultivation of biofuels in ways that do not negatively impact on nature. “There is no generic recipe, but there is a need to experiment in China, in Africa, everywhere. There are examples where this works – biosphere reserves can actually be centres of excellence in this regard, generating ideas and practices and disseminating them.”

Phillia Restiani reported on the experiences of Indonesia in promoting renewable energies as an important part in achieving sustainable development. “In this discussion we also need to talk about incentives and disincentives for renewable energies to be produced compared to the conventional, fossil fuel energies.” She also spoke about the necessity for



Phillia Restiani

ownership of the people. “There have been many projects on introducing energy to small villages have not been sustainable because people did not feel that the technology is for them. They have to be comfortable with the technology. We are still working on how to develop such capabilities of rural communities. Biosphere reserves can have a huge role in that regard.” Biosphere reserves offer a framework in which the community can build the knowledge and the capability to decide and then to use technology sustainably, she said.

Ivo Mulder of UNEP followed up on this and reported about the findings of the UNEP Green Economy Report and about UNEP’s advisory services in the follow-up. “At the moment we actively consult 20 governments. The key for greening economies is to have the right incentives, not only in developed countries but even more in

developing countries. A lot of reforms need to be carried out, on removing distorting subsidies and on incentivising renewable energies such as wind power or biofuels. Our role is about informing, providing the evidence of what works, capacity-building and training.”

From the audience, Johannes Prüter of the German biosphere reserve Elbe River Landscape spoke about experiences in combining the conservation of biodiversity and the promotion of biofuels: “In recent years, we have observed a process during which the agricultural landscape has become more and more uniform. Maize is grown everywhere as a crop for energy production and due to that we also observe a severe decrease of biodiversity in the agricultural landscape. So we, the biosphere reserve administration, organized round tables with farmers and nature conservation people looking for new solutions. In fact there is a small room for accommodating both concerns in a biosphere reserve, but this depends on the overall regulatory framework, such as subsidies.

What makes biosphere reserves special is that they are an excellent framework to bring together people” he said.

Rattan Lal intervened once more stating that in many parts of the world traditional biomass still is the sole energy source, leading also to many problems such as air pollution. In his opinion, modern biofuels, even if produced from agricultural residues, are not per se positive; complete life-cycle analyses are necessary to demonstrate their sustainability. Uwe Fritsche replied that global standards and indicators for sustainable bioenergy production have already been proposed, e.g. at national level or by the “Global Bioenergy Partnership”. He has summarized the global debate in a special paper for this conference (cp. the box). Indonesia and Colombia will be two of the first countries to test them – thus there is some progress.

But given that markets are globally connected, he warned that regulating, standardizing and setting appropriate incentives for sustainable bioenergy is not sufficient, since pressure on

**Main message of Ivo Mulder to the Conference:**

A Green Economy can be defined as one that results in improved human wellbeing and social equity, while significantly reducing environmental risks and ecological scarcities.

A Green Economy is characterized by substantially increased investments in economic sectors that build on and enhance the earth’s natural capital or reduce ecological scarcities and environmental risks. These sectors include renewable energy, low-carbon transport, energy-efficient buildings, clean technologies, improved waste management, improved freshwater provision, sustainable agriculture, forestry, and fisheries.

UNEP’s Green Economy Initiative (GEI) has considerably contributed to bringing the concept on the table. GEI cooperates with a large number of countries. UNEP FI is one example how we stimulate greening our economy by working with more than 200 financial institutions.

We also plan to work with financial institutions to stimulate greater involvement in emerging environmental markets, especially forest-carbon through REDD+.

The 2011 Green Economy Report can be found at [www.unep.org/greeneconomy](http://www.unep.org/greeneconomy).

**Main message of Phillia Restiani to the Conference:**

REDD+ is a mechanism that offers high promises, not only of curbing deforestation and its pertaining benefits, but also of enhancing the welfare of forest-dependent communities, of providing a means to achieve green economy. Nevertheless, these promises are hard to come by in reality.

The importance of REDD+ initiatives as part of Indonesia's mitigation effort are unquestionable. Forests and peatlands cover over two thirds of Indonesia's total terrestrial area and contribute to 60 percent of the national total carbon emissions. Indonesia's commitment is clear: a target of 26 percent emissions reduction by national efforts and up to 41 percent with international support, while achieving 7 percent economic growth.

The implementation of REDD+ in countries such as Indonesia faces enormous challenges, from 'translating' the technicalities to the battle of fighting the decades-long drivers of deforestation and degradation: ineffective land use and tenure, lack of good governance, unsustainable forest management. It needs to address conflicting and competitive uses of forests and peatland from a number of actors and economic sectors.

Any successful REDD+ implementation necessitates a new paradigm and creative, transformative solutions to ensure that economic development is carried out in a sustainable manner environmentally and socially. To achieve this, REDD+ must go beyond carbon emission reduction. It should be embraced as a vehicle to bring about governance reform, to create productive economic sectors that view natural resources and biodiversity as assets to maintain, to strengthen a fair and sustainable forest and peat land management that identifies local and indigenous people as key actors.

ecosystems also comes from other forms of land-use, i.e. agriculture and forestry, as well increasingly also in marine areas, such as algae production. "The colonization of nature is continuing." Uwe Fritsche further said: "We should regard biosphere reserves not as 'strongholds', but as conceptual frameworks that show how people can live with nature and live from nature, and live with each other. Greening the economy in the meaning of switching from fossil fuels to renewables is part of the solution, it is not the solution. The core principle is what services do we want from nature and for whom." He referred to the UNEP report but added that it is important to ask which economy we want to green. He referred to diverse traditional economies which may for example be found in biosphere reserves that have worked for centuries, while our current market economy seems to have

trouble to be maintained only for some decades. Ivo Mulder emphasized as a matter of fact that this market economy is relevant for virtually all human beings today.

Luis Aragón followed up on this stating that it is important for biosphere reserves and the MAB Programme to talk the walk. "In the network there are many initiatives that can make or already make a difference" he said. Arnd Henze agreed that it is necessary to create good narratives on success stories. Uwe Fritsche also agreed but warned: Doing good things and talking about it takes capacity, thus more and better human resources. "Most of the biosphere reserves are completely absorbed with their most basic tasks. To work with the media is just beyond their capacity. There is need for investment for better communication – thus not only in technology, but

also in capacity.” Luis Aragón added that biosphere reserves being comparatively small are not at the right scale to provide macro-economic stimuli, but that they are spaces to connect stimuli to the interests of individual people and communities. Phillia Restiani emphasized that new instruments such as REDD+ can be important tools for the transition to sustainable development, for example in her country.



Uwe Fritsche

Next, Arnd Henze raised the question if a green economy must necessarily be a local economy or whether it can be global. “Is it correct to say that an economy that avoids transportation is per se greener than a globalized economy with exchange of commodities between continents?” Ivo Mulder did not want to draw a distinction between local and global economies when speaking about green economies; in a de facto globalized economy, both variants need to evolve towards

becoming more sustainable. To him it is important to note that a low-carbon and energy-efficient economy and which also minimizes waste can indeed increase GDP and create jobs. Going beyond that and reducing global transportation through new regulation would not only be a huge step back, but also increase prices considerably, he said. Phillia Restiani added that producing good nationally not only create income, but are also a source of pride, “Empowering local people as the main actors to achieve sustainable development.” In Indonesia for example, the government has recognized the many diverse ethnic groups as key stakeholders for natural resource management and in the economy as a whole.

Uwe Fritsche emphasized that local economies must not be oriented backwards: “It is a total misconception and absurd to think of local economies as disconnected, isolated economies. Isolation is opposite to what we want to achieve; people aspire freedom, and freedom is not local.” In contrast it is central to use local resources without compromising the global commons. On the concrete question of whether a German in late spring should buy an apple from Germany (stored in the warehouse for the winter) or from New Zealand (transported by plane): We have to look at the full lifecycle, i.e. cooling, transport etc. This analysis will lead to the insight that some food from very large and efficient agro-processing systems will be “better” in terms of resource use and GHG emissions than locally-produced food.

**Main message of Uwe Fritsche to the Conference:**

Of all primary energy used today, biomass contributes 10 percent but its share will rise with increases in population, energy prices, and concerns about energy security. Bioenergy has many opportunities for sustainability, but it needs “steering”, as its biodiversity impacts are manifold, from land use change to landscape-level agrobiodiversity. Extraction and use of residues could indirectly affect biodiversity through impacts on habitats and soil. Thus, sustainability is a core prerequisite for bioenergy and biomaterial development. Several normative instruments are in place already, e.g. in the EU or the USA. Argentina, Brazil, Mozambique and Thailand, among others, currently establish own schemes. FAO, UNEP as well as UNCTAD support developing countries in such activities. Internationally, the GBEP agreed on a list of sustainability indicators for the national level in May 2011

Bioenergy opportunities include: New cultivation systems using non-invasive species could enrich agro-biodiversity. Better water management is important to secure ecosystem functions – bioenergy crops can be more drought-tolerant than agricultural crops, and perennials could improve water retention in soils.

As biodiversity is fundamentally endangered by global climate change, GHG mitigation by substituting sustainable bioenergy for high-emitting fossil energy is important. Land use change (LUC) from cultivating bioenergy could increase GHG emissions, though. Thus, the GHG balance of bioenergy throughout the entire life cycle, including land use change, must be considered. To avoid displacement of existing land uses (and, hence, indirect GHG), the use of abandoned or underused land is an important option for bioenergy cultivation, and growing perennial crops on degraded land improves the carbon balance and helps restoring soils. With agriculture often being underdeveloped, investment in bioenergy can improve yields and infrastructure, improving rural development and access to modern energy which in reduce deforestation pressures.

For details, cp. the document prepared for the conference: <http://bit.ly/pek8z> (PDF, 20 p.)

But is this the only benchmark? We should be very careful in our economic choices not only to take into account minimizing financial costs, carbon and energy, but also to take into account other values.” Even the most sophisticated life-cycle analyses done today do not provide a full picture. “I would like to eat an apple that tastes good; there are low-carbon apples which I would not like to eat at all.”

Another voice from the audience was Jens Triebel, mayor of the German city of Suhl near the biosphere reserve Vessertal-Thuringian Forest. He called into question that biosphere reserves play an important role in the production of renewable energies because, in his opinion, de facto, they do not

test renewable energies but rather legally or administratively prohibit the expansion of the four renewable energies most relevant for Germany; thus he believes that renewables might even be entirely in opposition to other objectives of a biosphere reserve. In reply, Uwe Fritsche said that this intervention shows how much UNESCO biosphere reserves are needed as ‘laboratories’. “We have to make these experiences. In the real world, there will be debate everywhere, whether you want to build a wind power station, whether you want to build a dam in a river, whether you want to build a solar panel on a roof. There simply is no free lunch! The only acceptable way forward is to minimize negative trade-offs, which beyond any

doubt will exist in all practical cases. In biosphere reserves there is the unique opportunity to demonstrate that we can use some of the natural flows without compromising biodiversity.” He also said that he is convinced that reasonable laws can only be derived from the practical demonstration. “It is not either-or; it is to demonstrate how you can do it, involving the people living there.” Another participant from Indonesia referred to a hydropower project in an Indonesian biosphere reserve; the important role of the biosphere reserve is not to produce the hydropower per se but to make sure that the local population benefits to the extent possible.



Ivo Mulder

Natarajan Ishwaran, Secretary of the MAB Programme, also reminded the audience that significant experiences with renewable energies have been made in biosphere reserves only during the last ten years, not before. “We

have good experiences and fairly well established processes for involving local communities; i.e. the social dimension of sustainable development. Surely renewables are opportunities for biosphere reserves. But what we have also learnt over the last ten years is that renewable energies are not in every case environmental-friendly. In Sri Lanka for example, dams producing hydropower have created several important environmental problems. There are trade-offs everywhere and we simply have to find out what the best solution is with the stakeholders” he said.

Luis Aragon added that when biosphere reserves involve communities, they need to explain not only benefits but also ‘real world’ challenges such as the 1 billion hungry people globally or the dramatic global migration movements. He regards biosphere reserves as instruments to educate people that the world is not even and that it is undergoing dramatic change. At the same time biosphere reserves offer a unique space to bridge many different levels: the global level, national, provincial, community and local levels, in decision-making and in exchange of experiences.

In her concluding remarks Phillia Restiani said that for her the concept of biosphere reserves is convincing because it is about creating harmony between nature and culture. “In implementing REDD+ in Indonesia we have spent a lot of time actually just talking to stakeholders, in order to



get them to agree on an issue. But you need to convince people, this takes time, this is the reality. Human beings are at the centre.” At the same time, good governance is important, such as practiced in biosphere reserves. “If you don’t have strong institutions, good mechanisms, it is just going to fail.” Ivo Mulder concluded that it is a huge challenge to connect the work of biosphere reserves with the very different world of financial institutions. One perspective could be that of risk management, some banks investing to some degree into World Heritage sites and maybe also biosphere reserves; however, what should be much more rewarding is to look at biosphere reserves from an opportunity perspective as incubators for sustainable development, triggering sustainable income flows.

Uwe Fritsche said in his conclusion that wonders cannot be expected from biosphere reserves. “I would be cautious to say that biosphere reserves will help us in significant quantitative terms, but they might help us in enriching our options, in supporting the overlooked implementation dimension, in deciding which of our options might work.” He also underscored the need to introduce innovative mechanisms to change the market, such as financial support to communities in Germany to become entirely carbon-neutral; yet even if such technology-oriented tools are excellent for Germany, they lack an important social and biodiversity dimension. “Even such a well-established, well-financed

initiative misses ‘interference’ with the concept that the biosphere reserves stand for” he added. At the same time the biosphere reserves cannot proceed in renewable energies without interference with this other, more regulatory world. As a good example he referred to a community-based biodiesel programme in Northern Brazil, financed by a levy on ordinary diesel. “It’s not only about local capacities, the local regulations and options. It is at the same time important to change the rules in the market; this is why UNEP’s financial initiative is so important. The best local activities will fail if the market signals are wrong. It is not an either-or. We have to work on both ends in order to achieve truly sustainable bioenergies.”



Evening reception at the Residenzschloss

### Evening reception

In the evening of 27 June, a reception took place in the inner court of the royal castle “Residenzschloss” in

Dresden, hosted by courtesy of the Saxon state government. Several short speeches were delivered on this occasion, by Frank Kupfer, Saxon State Minister for the Environment and Agriculture, by UNESCO Director-General Irina Bokova, by Gertrud Sahler, head of the division for conservation and sustainable use of nature at the German Ministry for the Environment, by Professor Beate Jessel, President of the German Federal Agency for Nature Conservation, and by Roland Bernercker, Secretary-General of the German Commission for UNESCO.



State Minister Frank Kupfer

State Minister Kupfer emphasized in his speech the importance of the UNESCO biosphere reserve “Heath and Pond Landscape of Upper Lusatia” for the efforts of the Saxon government to promote sustainable development. In particular, he referred to a recent large-scale project to establish organic carp fisheries. Beate

Jessel underlined the commitment of Germany for international cooperation within the World Network of Biosphere Reserves; examples are the support given to Ethiopia to set up its first two biosphere reserve, funds from the German “International Climate Initiative” (IKI) or the workshop organized in parallel to the Dresden conference for managers of African biosphere reserves.

## MORNING SESSION OF 28 JUNE

### Third panel discussion Governance, research and education in times of climate change

Arnd Henze discussed with **Prof Dr Susanne Stoll-Kleemann**, Professor for Sustainability Science and Applied Geography at the German University of Greifswald, Ms **Sheila Ashong** of Ghana’s Environmental Protection Agency, and Ms **June Marie Mow**, former director of the UNESCO biosphere reserve Seaflower in Colombia. He kicked off with the following questions: How does learning in biosphere reserves translate into discourses on climate change and biodiversity in society at large? How can we spark the interest of youth in these issues? How can experiences be passed on and refined as ‘lessons learnt’ in the world network?

Susanne Stoll-Kleemann confirmed from her experience that biosphere reserves are in fact small model regions for learning and the testing of forms of good governance, as it is required

by the Seville Strategy and the Madrid Action Plan. She based this assessment on her own comparative research projects on UNESCO biosphere reserves on different continents. “They are ideal places to test diverse forms of management. While it is still often the case that administrations are official state institutions, also other forms are applied such as joint or community management. In some biosphere reserves these other forms are implemented very successfully; this is especially the case in Latin America, where often local mayors sit on boards, where indigenous peoples can formulate their concerns and where stakeholders from different levels, national, regional and local, work together in the management.”

She explained that she had found out in her research that “the more diverse the better” is the recommendation for a management board’s composition; this is because acceptance among all stakeholders will be significantly



Susanne Stoll-Kleemann

larger and collaboration will work much better. She also urged: “This will not always be without friction: A meaningful conflict management is therefore important. But exactly this – to look into forms of good governance – is tested very successfully in biosphere reserves.” Sheila Ashong agreed with Susanne Stoll-Kleemann

**Main message of Susanne Stoll-Kleemann to the Conference:**

The successful development and implementation of biosphere reserves depends on several factors: While in terms of research, they are well-known to be excellent sites, in order for research to feed back into a successful biosphere reserve management, the research must be transdisciplinary, participatory and applied. Scenarios must be jointly developed with citizens, perception of change processes by local groups must further be taken into account, research and implementation must be combined and stakeholders integrated in a targeted fashion (trustees, citizens’ initiatives).

In order to implement an adaptive management, social monitoring in biosphere reserves is crucial to really understand local interests and to promote the legitimacy of the actions taken within the biosphere reserves.

We must also promote awareness of the basic vision of biosphere reserves as drivers of regional development; we need to adapt zoning approaches - for this social monitoring is decisive as well.

Finally, use must also be made of the world network as such through comparative research, identifying indicators that are common for the management of all biosphere reserves world wide. The network may also show comparable problem solving approaches such as a targeted exchange of biosphere reserves with each other (e.g. through online communication platforms or the UNESCO MAB Clearing House Mechanism).

by stating her experience from Ghana that “people show much more interest when you invite them to take part”. June Marie Mow explained that “involving communities can have advantages and disadvantages”. She explained that once people are invited to participate in decision-making, they also would like to see their proposals taken into account which is not always the case when government or business interests are involved. For example, for quite some time now, there have been discussions about oil exploration in the Seaflower biosphere reserve, an archipelago in the Caribbean. The local communities, especially on the island of Providencia, have joined into an important movement to stop these explorations, working on the basis of the concept of sustainability as proposed by the biosphere reserve; they do not regard incomes from oil extraction as viable in the long-term.

Answering another question by Arnd Henze, June Marie Mow confirmed that participation indeed empowers the people beyond a particular situation;

but the momentum has to be maintained. Sheila Ashong drew an “important distinction between authority and responsibility”. While the authority for the Ghanaian Bia biosphere reserve resides with the government, responsibility has been devolved to local communities. There is continuous participation, residents are taken seriously.

The next issue the panel talked about were the biosphere reserves’ management plans, one of the defining and decisive instruments of biosphere reserves. There is a tension on how to formulate management plans: on the one side reliability for all stakeholders and at the same time constant need to adapt to changing circumstances such as in the case of climate change. Susanne Stoll-Kleemann said that it is most important that state authorities recognize flexible, adaptive management plans as important working instruments of UNESCO biosphere reserves. “Review and adjustment of work plans works very well in development aid contexts; state administrations in

**Main message of June Marie Mow to the Conference:**

In many small islands states, establishing a biosphere reserve as a process is an alternative to centralized, top-down models of sustainable development planning and management, which miss to take into account insularity, socio-ecological processes, and the perceptions and knowledge of islanders. Adaptive governance requires many skills, education and training, as well as appropriate forms of stakeholders’ organization. The main bottleneck, however, are conflicts between the development models propagated by the different institutions at local and national levels.

Many small island subsistence economies are based on tourism, farming and fishing, all of which will be heavily impacted in most climate change scenarios, e.g. through increased precipitation variability and intensity, drought and flooding, sea level rise and availability of drinking water. The management response of biosphere reserves must be a process to recover and strengthen socio-economic and ecologic resilience, through empowering and supporting people to timely mold changes from within the socio-ecological systems.

developed countries need to learn that adjusting work plans may also work in their own countries, e.g. in biosphere reserves.” Already when developing such a plan, diverse interests must be taken into account or, ideally, the plan should be set up in a participatory manner to have a solid foundation in society. However, it remains important to allow flexibility in the plans to adjust to natural developments such as climate change.

Therefore, a need arises for more flexible state budget structures, the possibility to adapt the legal framework and other mechanisms to adjust a biosphere reserve management plan; if necessary, maybe every two or three years. Susanne Stoll-Kleemann reminded the audience that it is also very important for biosphere reserve administrations to keep good contact to research institutions in order to have access to and be informed about new knowledge on climate change or other issues in the global and local context. “Such empirically based findings will allow readjusting a management plan with legitimacy” she said.

Arnd Henze asked whether biosphere reserves are venturing to remain at the forefront of the public debate – or whether in practice they perpetuate their initial objectives. June Marie Mow emphasized that the islands of the Seaflower archipelago are heavily affected already by a changing environment, e.g. the coral reefs. Adaptation is without alternatives, and this is done participatorily as well: fishermen



June Marie Mow

are actually involved in the monitoring of change. As regards communicating climate change as a topic to people, Sheila Ashong reported an interesting experience: “For us, the most effective means of communications has been using traditional authorities. In the Ghanaian biosphere reserve Bia, people with a traditional knowledge base had observed changes which can be correlated to climate change; e.g. changes in rainfall etc.” The state and biosphere reserve administrations are thus using them as key opinion leaders within the community and let them pass the message to other sectors of the community.

This role of biosphere reserves as ‘early warning systems’ was taken up by the other panellists. Susanne Stoll-Kleemann confirmed: “Well-equipped and well-financed biosphere reserves can indeed provide an early warning system for climate change if they keep

**Main message of Sheila Ashong to the Conference:**

Despite the immense contribution made by biosphere reserves in terms of modeling practical approaches to sustainable development, their full potential is yet to be harnessed, especially in several developing countries including Ghana. In the wake of a changing global climate, participatory management plans must be formulated around robust indicators. Authority and responsibility should be linked to demonstrate and permit mechanisms that delegate some authority to communities for the management of natural resources in their areas on behalf of national authority and to retain revenue from such management. Regular and effective monitoring and the integration of research findings, particularly from climate change studies, throughout the implementation of management plans must ensure achievement of the full set of a biosphere reserve's objectives ('for life').

Biosphere reserves are also still yet to get to the frontline of the sustainable development agenda, due to a relatively low level of awareness on the concept at the policy level. The overlap between climate change education and the education for sustainable development particularly must be made use of, with a special focus on youth education ("for the future").

close contacts to local communities and land users and transfer information on observed changes to policy-makers." In addition, she pleaded for introducing socioeconomic monitoring systems in biosphere reserves, in line with the Seville Strategy. By this she meant processes, surveys and analysis of statistical data to identify problems and attitudes of the inhabitants. Such monitoring could be implemented by the biosphere reserves' administrative staff or in cooperation with universities. Beyond obtaining interesting and policy-relevant information, there is one big advantage: being able to systematically tap the human resources within the biosphere reserve.

"However, there is obviously a discrepancy between concept and implementation. In our pilot projects, we have found that there is much expertise and much employee commitment in most biosphere reserves. But the high expectations which we have formulated in the Madrid Action Plan and which we are formulating also here

today, cannot be met with the limited financial and human resources of many biosphere reserve administrations" she warned. June Marie Mow conceded as well that not all biosphere reserves can live up to the expectations and also that learning between biosphere reserves is not always optimal; at the same time she pointed towards the excellent learning opportunity that the regular periodic evaluations, performed every ten years, present.

Sheila Ashong reported that climate change in Ghana has been regarded as a development issue across all sectors for ten years now. After a long education campaign, climate change today is present as a challenge in the mind of every minister and nearly every citizen. In contrast, she observed that biosphere reserves and the MAB Programme are relatively less known in Africa until now. Her idea in turn is thus to use climate change education to promote MAB: "We like to say: Life begins at 40. It's an opportunity for us to capitalize on the popularity

that climate change has attained and step in to use climate change education to educate people on the biosphere reserve concept, especially elementary school children and the youth.”

June Marie Mow and Sheila Ashong also explained how in their respective cases, the biosphere reserve is used for educational purposes. For example, a local college participates directly in the work of the Seaflower biosphere reserve; jointly, educational content on mangroves is created and fed back into the management. Children can also experience how traditional fishermen are working. Tight cooperation with research is less straight-forward because there is no university on the islands.

Discussions then revolved around the potential of biosphere reserve administrations to resolve conflicts such as the ones that emerged in Yasuni or Seaflower, in which management plans are threatened to become irrelevant because of new economic developments. Susanne Stoll-Kleemann highlighted that expertise in how to moderate conflicts is important for biosphere reserve staff and mentioned specific advantages: “They can assemble people with interests similar as the objectives of the biosphere reserve. They can mobilize citizens’ initiatives. They can also use their close contacts to state administrations to solve a conflict. In some cases, they can also make use of the international UNESCO label, for example where national economic interests clash with the important



Sheila Ashong

value internationally acknowledged by UNESCO.” June Marie Mow added her experience that the UNESCO recognition could indeed be used to support the fight against adverse economic developments. In order to further support this cause, a World Heritage nomination is considered as an addition.

Susanne Stoll-Kleemann reported on a survey on the acceptance of four German biosphere reserves in the population concerned which she and her research team had recently conducted. In each case about 80 percent of the inhabitants support the biosphere reserve without any reservation. “This was very positive, but also at least partly a surprise for the persons in charge. Usually critical voices are well perceived by media and politicians, while satisfied people remain silent, so typically there is a distorted perception of the inhabitants’ attitude.” Socio-

economic data can help to obtain a full picture and can also convince politicians to support a biosphere reserve, satisfied inhabitants being satisfied voters. Conflicts are often questions of power, she added: “Dealing with power structures and political interests in many cases is not easy for the staff of a biosphere reserve, staff with often an ecological background.”

For Sheila Ashong, the crucial function of a biosphere reserve is to build consensus. That can take a long time, she admitted. She gave the example of logging timber in the Bia biosphere reserve. Initially this had been banned when the area also was a national park; since the timber industry is the second largest source of income in Ghana, after protests, logging was allowed again in one part of the area. “Today, after about 30 years of logging, people realize that there is a need to re-designate the contended area as a national park.” She said that in the long run you also learn from negative experiences.

Arnd Henze then broached the idea of participation which in democratic states may be intrinsic. However, in non-democratic states, are biosphere reserves “lonely islands of participation”? According to the results of Susanne Stoll-Kleemann’s research project ‘Governance of Biodiversity’ (GoBi) there is no direct correlation. Participation and moderation as well as the joint development of visions at the local level can work well in any political system, democracy or autocracy. “If the social networks are

intact, microstructures of participation and joint consensus building can work very well in non-democratic countries” she said. Participation might even function better than in representative democracies, because people learn processes that are not self-evident, such as direct and collective participation on the local level in biosphere reserves. “In general, in biosphere reserves worldwide this works very well and can actually be a stimulus for positive effects from the bottom up” she said.

June Marie Mow added the special experience of an archipelago far off the mainland, for which the designation as biosphere reserve helps to maintain a close link to central government institutions. But mainly the instrument serves to enable self-driven development options; in effect an alternative to a development model based on petrol and an alternative to privatizing public



Nina Treu



goods such as the oceans. The archipelago thus wants to contribute also to mitigate climate change that will lead to a loss of 10 percent of the landmass of the island of San Andres.

Sheila Ashong finished by stating: “It’s time to let policy-makers and school children see the true opportunities of biosphere reserves.” Experiences showed that the concept of sustainable development was too abstract for people, so they do not feel responsible for it. “The concept of biosphere reserves in turn stresses a concrete content: ‘I am part of the life support system, so I have the responsibility to protect it.’” She wished that this important value of MAB will gain more publicity in the upcoming years, especially in Africa and Ghana. Susanne Stoll-Kleemann agreed: “Biosphere reserves do not just ask for more money but for more political support and more recognition of actors at all levels for the work achieved.” Moral support is important and appreciation of the achievements under difficult conditions can help to better exploit existing potential. Also June Marie Mow wished that the communication of the achievements would improve.

### **Youth intervention**

Following this third panel discussion, Ms **Nina Treu** from Germany, a representative of the international youth initiative “Go4BioDiv”, was given the floor to present the conclusions of this initiative on climate change and biodiversity and her personal opinion on what had been discussed so far du-



Prof Dr Beate Jessel

ring the conference. As the conference title highlighting the future suggested, to her, the young generation must be involved in all strategies. “Very often youth can be strong multipliers; they have refreshing and mind-opening ideas.” Participatory approaches are necessary, especially involving local and indigenous communities for coping with the impacts of climate change, for strengthening the resilience of ecosystems. This does not only concern individual projects, but the management practice of protected areas and the development of tourism. “Many challenges that protected areas are facing are quite similar all around the world.” She finished with an appeal: “We must act now!”

### **Plenary discussion**

Another opportunity was given for all participants to engage in the debate during a plenary discussion, with **Prof Dr Gretchen Kalonji**, Assis-

tant Director General of UNESCO for Natural Sciences, and **Prof Dr Beate Jessel**, President of the German Federal Agency for Nature Conservation, on stage, moderated once again by Arnd Henze. The special focus of this discussion was on synergies and conflicts between climate change and biodiversity policies.



Prof Dr Gretchen Kalonji

Reconsidering one and a half days of debate, Gretchen Kalonji asked herself if all the people working impressively through and with the MAB Programme can mobilize even more the collective capacity of the network. “Among other things, we must utilize the sites with the huge amounts of data gathered as locations for joint research of university professors, students and local communities. Such joint activities, also involving traditional knowledge and citizen science, have clear benefits over isolated action.” Gretchen Kalonji proposed to proceed on three parallel

strategies during the next few years: First, to build greater awareness at the national level, especially through mobilizing MAB national committees; second, to strengthen research, education and also communication capacities at the sites; third, to mobilize international cooperation and institutionalized collaborative action.

In turn, Beate Jessel reminded the audience that while climate change is a global phenomenon, its impact is locally specific and concerns can vary largely. “We need much more awareness at the political level, but at the same time many different and differentiated initiatives at the local level. Supporting this double thrust, the World Network of Biosphere Reserves can offer many different well-developed show case scenarios and provide many examples for concrete action.” For any land user anywhere in the world, her actual living conditions, her own economic and social conditions are of concern, not abstract, global problems such as climate change or biodiversity loss: “We need to speak to the people in their language. Land-use is a very important leverage for this. Creating incentives for sustainable land-use offers great potential. Individual solutions are needed, tailored to the specific area and addressing both the respective land-use and overall economic conditions.”

She referred to ten projects funded by her institution in German biosphere reserves dealing with the need to accommodate biodiversity and climate

change concerns always adapted to local needs. This also implies the need to educate children already in school on sustainable approaches to land-use and development.

Gretchen Kalonji reiterated the paramount importance of the conference Rio+20 in 2012: “Biosphere reserves offer exciting lessons which must be highlighted in Rio. We should also work towards a new joint plan of action to be unveiled for Rio+20, with a view towards more effective linkages within the World Network of Biosphere Reserves and also towards bringing on board additional partners.” Ms Jessel: “We need more good practice examples; examples that have proven their effectiveness are the best teachers. Biosphere reserves are just ideal in this respect.”

Then Arnd Henze opened the discussion towards the audience. Several participants said that a lot still needs to be done to make the concept of biosphere reserves known to a wider public. Ahmed Senhoury from IUCN underlined the significance of trans-boundary biosphere reserves for peace building. Paul Makenzi from Zimbabwe, chair of AfriMAB, emphasized that many countries lack the research capacity to adequately prepare for climate change adaptation. He also asked for more exchange of experience such that new biosphere reserves such as ‘Middle Zambezi’ don’t have to start from scratch.

Some participants such as the mayor



Anusha Amarasinghe in the final discussion

of the German city of Münsingen said that these model regions should not be regarded or even communicated as “islands of happiness” – they face the same problems as the rest of the world, maybe even more, given their ambitious mission. Beate Jessel agreed on this statement adding that the biosphere reserves’ true advantage is that they tend to address conflicts head-on instead of sweeping them under the carpet; thus enabling the consensual, exemplary development of solutions. She echoed others in emphasizing that the concept of biosphere reserves must not remain an exclusive insight to the people living inside. “The idea must be disseminated to society at large in order to become more relevant!” In this context, other participants underlined the importance of community ownership and partnership.

Lenelis Kruse-Graumann of the German MAB national committee

criticized that MAB still did not pay enough attention to “man“ in the title of the programme: “To deal in earnest with human beings is just crucial: We do not understand from the outset how and what human beings are thinking. Beyond ecological research, we need serious human and social science research, for example to support solving conflicts, to apply different methods of participation and to properly communicate relevant messages to the public.”

Some participants pleaded for obligatorily requiring the monitoring of socio-economic factors and for integrating environmental, economic and socio-cultural dimensions into the monitoring process; on both these issues, there is need to go beyond the Madrid Action Plan. A participant from Israel underlined that during this conference there had been more discussion about community involvement in management than community participation during start-up phases. Another unique biosphere reserves‘ feature, as underlined by Doris Pokorny from the Rhön biosphere reserve, is the integration of distinct topics that are typically discussed separately from each other: “Implementing sustainable development together with the local population, supporting this through research and education, as well as developing new models of participation – biosphere reserves do all of this every day. And in biosphere reserves we demonstrate that new thinking is possible in terms of conscious consumers and conscious businesses, because we

are involved in market dynamics.” Beate Jessel directly related to this statement: “That is completely right. However, what we should not do is being presumptuous and maintaining to save the world. Instead, let’s focus on realistic progress step by step in our immediate surrounding. This is what UNESCO biosphere reserves offer the best conditions for.”



Delegates submit amendments to the Declaration

Arnd Henze closed the session summarizing what he as “community outsider” had learnt from the discussions. To him, the continuing challenge of biosphere reserves and the UNESCO MAB Programme as a whole was to balance two approaches: “small is beautiful” and “think big”: “Biosphere reserves are really excellent in ‘small is beautiful’. However, they should feel entitled to more confidence and pride about their achievements and start to ‘think big’. They need to recognize that with what they are doing

they can make a unique contribution for mankind as a whole. That would be constructive and helpful – and not dangerous” he said. Within the MAB community, there should also be better awareness about discourses within society at large – and about the timing when specific arguments and learning experiences from MAB will be of particular benefit. “Thus, biosphere reserves would become better known; and at the same time, it would be a unique success if discussions in society were structured around successful examples and not around horror scenarios.” In closing, Gretchen Kalonji thanked Arnd Henze for these inspiring words.

### **Adoption of the Dresden Declaration**

After a final coffee break, the participants discussed the amended version of the Dresden Declaration. Over night, every participant had had the opportunity to submit proposals for modification. Some twenty amendments had been submitted. In the morning before the conference session, a drafting committee mainly consisting of the MAB Bureau had discussed them one by one. Most amendments had been accepted, some in an altered or abridged version. During the final plenary discussion, additional suggestions were made and those participants, whose amendments had not been accepted, could again defend their suggestions.

Once every paragraph was drafted in a consensual format, the document called “Dresden Declaration



Dr Natarajan Ishwaran presents the farewell gifts, edible flowers.

on Biosphere Reserves and Climate Change” was adopted by acclamation. The full text of the declaration in all six UN languages and in German can be found on the centre pages of this publication.

### **Closing**

The conference was closed by Natarajan Ishwaran, Secretary of UNESCO’s MAB Programme, with a short presentation entitled “Lessons learnt – lessons to learn”. He started from the consensus developed over the past 40 years: “The identity of biosphere reserves as areas working towards sustainable development through multiple uses is well established.” But there is need to invest into more communication – and there is need to working towards convincing even some core constituencies, as some biosphere reserves continue to work mainly towards nature and biodiversity conservation. “Once and

for all, biosphere reserves truly need to be accepted as learning laboratories for sustainable development.”

Interdisciplinary and policy-relevant activities are also needed in the fields of research, education and capacity building, integrating the three functions of biosphere reserves. According to Natarajan Ishwaran, biosphere reserve also need to be better prepared to answer questions and speak the language of decision-makers; in many practical examples, it is key to convince political decision-makers – they will then become multipliers convincing people living in the area.



Lively participation in the discussion of the Declaration

He also referred to the “Rio+20 Conference on Sustainable Development” in 2012. “The opportunity is huge: We can highlight good practices.” He cited the publication produced by the German Commission for UNESCO ahead of this conference as a starting point.

He highlighted as well that institutional arrangements for sustainability and for managing landscapes with such complex challenges like biosphere reserves will also be a major theme for Rio+20.

Finally Natarajan Ishwaran made his farewells to the conference participants and thanked all organizers, the Free State of Saxony and other partners for the “tremendous way to celebrate the 40<sup>th</sup> anniversary of the ‘Man and the Biosphere’ Programme”.

*The conference “For life, for the future. Biosphere reserves and climate change” was followed by the 23<sup>rd</sup> Session of the International Coordinating Council (ICC) of the MAB Programme.*

*The ICC met from 28 June in the afternoon to 1 July in the evening including a field trip to the UNESCO biosphere reserve Heath and Pond Landscape of Upper Lusatia on 30 June in the afternoon, a dinner cruise on the river Elbe on 29 June and the continuation of the parallel workshop for biosphere reserve managers from Africa.*



Anna Steinkamp and Dr Lutz Möller of the German Commission for UNESCO, supporting drafting the Declaration

## Annex

### Conference programme

#### Monday, 27 June

08:30 - 11:00

Registration and welcome coffee

11:00 - 11:45

#### *I. Introduction*

Dr Natarajan Ishwaran, Secretary of the UNESCO MAB Programme

#### *II. Welcoming message*

Ursula Heinen-Esser, State Secretary at the Ministry for the Environment, Nature Conservation and Nuclear Safety, Germany

#### *III. Welcoming message*

Irina Bokova, Director-General of UNESCO

11:45 - 12:05

#### *IV. Keynote*

*40 Years of the MAB Programme: Achievements and challenges*

Luis Fueyo Mac Donald, Director of the national reserves, Mexico

12:05 - 12:25

*V. Keynote*

*Biosphere Reserves and climate change in Small Island States*

Mohammed Aslam, Minister for Housing, Transport and Environment, Maldives

12:25 - 12:45

*VI. Biosphere Reserves and climate change in Africa*

Dessie Dalkie Dukamo, Minister for Science and Technology, Ethiopia

12:45 - 13:15

*VII. Wrap-up: Biosphere reserves as implementing instruments for climate change policy*

13:15 - 14:30

Lunch

14:30 - 15:00

*VIII. Message of greeting*

Stanislaw Tillich, Prime Minister, Free State of Saxony

15:00 - 15:15

*IX. Presentation of the draft Dresden Declaration: Objectives and process*

15:15 - 16:05

*X. Panel discussion*

*Climate change adaptation and mitigation through land-use*

Prof Dr Rattan Lal, Professor of Soil Science, Ohio State University, USA

Prof Dr Martin Price, UNESCO Chair in Sustainable Mountain Development, Perth College, UK

Jorge Jurado, Ecuador's ambassador in Germany

16:05 - 16:30

*Coffee break*

16:30 - 17:30

*XI. Panel discussion*

*Renewable Energies, green economies, and carbon offsets*

Prof Dr Luis Aragón, UNESCO Chair in South-South Cooperation, Belém, Brazil

Uwe R. Fritsche, Institute for Applied Ecology, Darmstadt, Germany

Ivo Mulder, UNEP Finance Initiative, Geneva, Switzerland

Phillia Restiani, REDD+Task Force of the President, Indonesia

19:30 - 22:30

*Reception of the Saxon state government with State Minister Frank Kupfer in the royal castle "Residenzschloss" in Dresden*



## **Tuesday, 28 June**

10:00 - 11:00

### *XII. Panel discussion*

*Governance, research and education in times of climate change*

Prof Dr Susanne Stoll-Kleemann, Chair of Sustainability Science and Applied Geography, University of Greifswald, Germany

Sheila Ashong, Environmental Protection Agency, Ghana

June Marie Mow, Former director of the biosphere reserve Seaflower, Colombia

11:00 - 11:50

### *XIII. Plenary discussion*

*Climate Change and Biodiversity - Conflicts und Synergies*

Prof Dr Beate Jessel, President of the Federal Agency for Nature Conservation

Prof Dr Gretchen Kalonji, Assistant Director-General of UNESCO for Natural Sciences

11:50 - 12:15

*Coffee break*

12:15 - 12:30

### *XIV. Adoption of the Dresden Declaration*

12:30 - 13:00

*XV. Closing session: Lessons learnt – lessons to learn*

Dr Natarajan Ishwaran, Secretary of the UNESCO MAB Programme

13:00 - 15:00

*Lunch*

From 15:00

*23<sup>rd</sup> Session of the International Coordination Council of the UNESCO MAB Programme (until Friday, 1 July)*

Subsequent to the conference “For life, for the future. Biosphere reserves and climate change” on 27 and 28 June 2011, the main governing body of the MAB Programme, the International Coordinating Council (ICC), convened at the same venue from 28 June to 1 July 2011. The meeting was held 40 years after the 1<sup>st</sup> MAB ICC session in 1971. Germany has hosted the MAB Council for the first time.

The MAB ICC has added 18 new biosphere reserves to the World Network, issued recommendations on periodic review reports of biosphere reserves and revised its own statutes.

The ICC is in charge of all important decisions within the MAB Programme. As MAB is an intergovernmental programme; the ICC consists of representatives from 34 elected UNESCO member states.

## Sustainable event organization

The international conference “For life, for the future” on the occasion of UNESCO MAB’s 40th anniversary and the subsequent 23rd session of the MAB ICC have been organized following the „*Guidelines for the sustainable organization of events*“ prepared by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety and the Federal Environment Agency. (English version of the guidelines: <http://bit.ly/nNv8L6>)

These guidelines are to guide all activities of the German federal government according to a decision of the State Secretaries’ Committee for Sustainable Development as of 6 December 2010.

As flights are unavoidable for a conference with participants coming from all over world, the organizers have spent 4,600 Euro to offset emissions of 200,000 kg CO<sub>2</sub> - an amount extrapolated on the basis of the expected participants’ number - in Gold-standard certified carbon offset projects of the organisation „atmosfair“. The sum will be invested for example in a UNFCCC-supported project that generates electricity from crop residues in India.



The participants in the courtyard of the conference centre

## Confence participants

The conference brought together some 300 participants from 74 countries.

Participants included representatives of UNESCO Member States as well as representatives of UN agencies, regional and local governments, academia and research institutes, civil society organizations, youth and the private sector. There have also been many biosphere reserve managers, parliamentarians and many individual experts from various fields of competencies.

Albania	Estonia	Malawi	Russia
Argentina	Ethiopia	Malaysia	Saudi Arabia
Australia	France	Maldives	Senegal
Austria	Germany	Mali	Serbia
Bahrain	Ghana	Morocco	Slovakia
Belarus	Guatemala	Mauritania	South Africa
Benin	Honduras	Mexico	Spain
Brazil	Hungary	Mongolia	Sri Lanka
Cameroon	India	Namibia	Sweden
Canada	Indonesia	Netherlands	Switzerland
China	Israel	Nigeria	Tanzania
Colombia	Italy	Norway	Togo
Côte d'Ivoire	Jamaica	Poland	Turkey
Czech Republic	Japan	Portugal	Uganda
Dominican Republic	Kenya	Republic of Guinea	Uruguay
Ecuador	Lebanon	Republic of Korea	USA
Egypt	Lithuania	RD Congo	Vietnam
El Salvador	Madagascar	Romania	Zambia
			Zimbabwe

## Partners

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the UNESCO MAB Programme,

the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety,

the German Federal Agency for Nature Conservation

and the German Commission for UNESCO.

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(Dresden State Art Collections)

Honda Deutschland GmbH (providing a free shuttle service with hybrid cars)



The conference organizing team of the German Commission for UNESCO

## **40 years of the MAB Programme Facts in a nutshell**

- 1968: “Biosphere Conference“
- 1970: Decision on the establishment of the MAB programme by the 16<sup>th</sup> UNESCO General Conference
- 1971: 1<sup>st</sup> MAB-ICC and decision on 14 project areas (major research projects)
- 1976: Recognition of the first 57 biosphere reserves
- 1979: Recognition of the first biosphere reserves in Germany
- 1983: 1<sup>st</sup> World Congress of biosphere reserves in Minsk  
→ “Action plan”
- 1991: International Advisory Council decides on standard criteria for biosphere reserves
- 1993: 12<sup>th</sup> MAB-ICC: cutback of the 14 major research projects to five priorities in biosphere reserves
- 1995: 2<sup>nd</sup> World Congress of biosphere reserves in Seville  
→ “Seville-Strategy“ and adoption of the “Statutory Framework“
- 2008: 3<sup>rd</sup> World Congress of biosphere reserves in Madrid  
→ new action plan called Madrid Action Plan (MAP)
- 2009: German Year of biosphere reserves
- 2009: UNESCO General Conference passes a resolution strengthening biosphere reserves
- 2011: Celebration of the MAB 40<sup>th</sup> anniversary from 27 June to 1 July in Dresden

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Federal Ministry for the Environment, Nature Conservation and Nuclear Safety



German Commission for UNESCO

The conference „For life, for the future“ discussed the role of UNESCO biosphere reserves in implementing and advancing climate change policies. It concluded with an appeal to better use the experience of biosphere reserves for climate change action.

In the outcome document, the „Dresden Declaration“, the participants called for a closer link between climate change mitigation and adaptation, poverty alleviation and the conservation of biological diversity.

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