

## Iraq Research Fellowship Programme

### SUMMARY OF ROUND 1 PROPOSALS & TEAM PROFILES December 2009

#### *'Use of Molecular Methods for Better Understanding of Tuberculosis in Iraq'*

##### **Research Summary**

The overall goal of this project is to apply recently developed molecular methods for the diagnosis of tuberculosis in Iraq and to characterize its causative agents in terms of species and subspecies grouping and anti-mycobacterial resistance.

This may eventually lead to better understanding of the tuberculosis epidemiology in Iraq, which is a mandatory step before designing a control program or evaluating a pre-existing one. In Iraq, tuberculosis is a leading cause of morbidity and mortality and comprises a major public health problem. However, the real figure of tuberculosis in Iraq is not clear due to many reasons including lack of reliable case records or case registration, consecutive wars and political instability, shortages in qualified laboratories and well-trained staff, etc. Rapid and accurate diagnosis and effective treatment of tuberculosis are cornerstones in the prevention of this worldwide infectious disease. Smears lack both sensitivity and specificity for *Mycobacterium tuberculosis*, and cultures usually require weeks before the species is definitively identified. In Iraq, AFB staining is of much lower sensitivity and specificity due to the uncontrolled use of antibiotics. In line with this, culturing the micro-organism is not practical as almost all Iraqi patients are on antibiotic therapy before they seek medical care. The advent of DNA-based technologies such as PCR-dependent methodologies has been a great advantage in the detection of the genetic component of microorganisms including *M. tuberculosis*. PCR amplification can be rapidly performed by using primers for a highly conserved sequence within a gene common to all mycobacterial species to amplify minute amounts of DNA.

##### **Research Team Composition**

**Principal Investigator:** Professor Mike Barer is College Director of Research, Deputy Head of the Department of Infection, Immunity and Inflammation, Professor of Clinical Microbiology and Honorary Consultant Microbiologist at the University of Leicester. Professor Barer's research interests include the physiology of *M. tuberculosis* during infection, TB genomics applied to public health and strain characterisation in real time, the nature of bacterial viability and its practical detection, the biological properties of enteric bacteria that underpin their transmission, methods to determine the properties of bacteria in their natural environments and culture-independent approaches to determining the aetiology and pathogenesis of bacterial diseases. His latest publications include: Rajakumar K., Shafi J., Smith R.J., Stabler R.A., Andrew P.W., Modha D., Bryant G., Monk P., Hinds J., Butcher P.D., Barer M.R. Use of genome level-informed PCR as a new investigational approach for analysis of outbreak-associated Mycobacterium tuberculosis isolates. *J. Clin. Microbiol.* 2004; 42:1890-6. Kehoe S.C., Barer M.R., Devlin L.O., McGuigan K.G. Batch process solar disinfection is an efficient means of disinfecting drinking water contaminated with *Shigella dysenteriae* type I. *Lett. Appl. Microbiol.* 2004; 38:410-4. Rowan A.K., Moser G., Gray N., Snape J.R., Fearnside D., Curtis T.P., Barer M.R., Head I.M. A comparative study of ammonia-oxidizing bacteria in lab-scale industrial wastewater treatment reactors. *Water Sci. Technol.* 2003; 48:17-24.

**Principal Author/Co-Investigator:** Dr Mohanad Mohsin Ahmed is a faculty member of the Department of Medical Microbiology in the College of Medicine, University of Karbala and Vice-Dean of the College of Applied Medical Sciences and former Head of the Department of Clinical Laboratory Science of the College of Pharmacy at the same university. His current research interests lie in identifying genes in prokaryotes that may confer drug resistance and may play a major role in the bacterial pathogenesis and gene products that could be a potential target for antibody therapy. He has previously worked on new immunological methods for the diagnosis of Visceral leishmaniasis, analysis of different multidrug resistance related gene products in schistosome associated and non-associated urothelial bladder cancer, and new methods for isolation, purification and characterization of single chain antibodies. He is the author of: Blanc M.R., Anouassi A., Ahmed M., *et al.* A one step exclusion binding procedure for purification of functional gamma-globulins from camelid serum. Identification of co-purified proteins. *Biotechniques*: 2009. In press. Blanc M. R.,

Anouassi A., Ahmed M., *et.al.* A new method to discriminate immunogen-specific heavy-chain homodimer from heterotetramer immunoglobulin G directly in immunized dromedary whole plasma proteins: western ligand blotting. *Vet. Immunology and Immunopathology*. 2009; 127(3-4): 340-9.

**Co-Investigator:** Professor Ali Al-Zaag is a Biotechnology specialist, who gained his PhD in Microbiology & Molecular Genetics at the University of Queensland, Australia in 1987. His research interests lie in Microbial Genetics and Molecular Epidemiology, Biosecurity and Biosecurity as well as Forensic DNA. Prof Al-Zaag founded the Dept. of Biotechnology (1993) and Institute for Biotechnology (1999) at the University of Baghdad and is a former Board Member of the same university. He is founder and Board Member of the National Scientific Research Commission, Chair of the Department of Biotechnology/ School of Science (1993-1999), Dean of the Institute of Genetic Engineering for Graduate Studies (1999-2006) and Member of Panel for the School of Science and the Council of Deans at the University of Baghdad (until 2006). Prof Al-Zaag was also Manager of the editorial board of the Iraqi Journal of Science (1994-1998) and Editor-in-chief of the Iraqi Journal of Biotechnology (2002-2006). He is a member of the UNESCO-Amman advisory group on Iraqi Higher Education.

He is currently engaged in the development of cooperative international programs to promote the safe, secure and responsible use of biological materials and training in biosafety, biosecurity and infection prevention. This includes surveillance of infectious diseases, molecular diagnostics and laboratory capacity building. Prof Al-Zaag has also recently initiated and is now Senior Technical advisor on a project to establish a new centre of excellence for Forensic DNA training in Iraq. He is also a reviewer for the Qatar Foundation, the UREP and NPRP programmes and the ASTF grant programme.

**Co-Investigator:** Dr Hassan Ali Abood Nasrullah is Assistant Professor in Karbala College of Medicine. Dr Nasrullah is a consultant Physician in Al-Hussein Hospital in Karbala City, Chief of the advisory board of the General Directorate of Health in Karbala Governorate and a member of the CME committee in the General Directorate of Health in Karbala Governorate. His research interests include: risk factors for chronic non-communicable diseases among the population in Kerbala governorate, the prevalence of obesity among the population, prognosis of Ventricular Fibrillation complicating acute myocardial infarction, hypothyroidism, and drug induced Hypokalemia, and the incidence of renal osteodystrophy in patients with ESRD on maintenance haemodialysis.

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## ***‘Female Iraqi Academics in Post-Invasion Iraq: Roles, Challenges & Capacities’***

### **Research Summary**

This proposed research will explore the crisis in Iraqi higher education through a gendered lens by focusing on the specific roles, challenges and problems of female academics. The main objective is to document the specific social, cultural, political and economic challenges female academics face within the current context while also analyzing relevant historical factors which have contributed to the current situation. While recognizing that the roles and problems of female academics need to be looked at in light of the wider crisis and challenges of Iraqi higher education, our research will aim to disentangle gender-specific issues and look at possible intersections of gender, generation, religion, ethnicity, political affiliation and social class in terms of appointments, job descriptions, actual tasks, training, access to resources, facilities and enumeration. A specific angle will revolve around the experiences of, and the relationships and tensions between different generations of female academics. We will include female academics who have fled Iraq post-2003 in our research, especially those based in Amman, Damascus and London as many are hoping to return to Iraq once the security situation and general living conditions have stabilized.

At the same time, the proposed research aims to assess gaps and needs in terms of qualifications, teaching and research skills, administrative and organizational abilities as well as resources. In addition to providing an analysis of the current situation of female academics, we aspire to draw up a concrete list of suggestions to contribute to skill development and capacity building.

### **Main Research Questions:**

- What is the role of female academics within Iraq’s higher education system?

- What are the different trajectories of entering academia in the current context as well as historically under the previous regime?
- Which qualifications do female academics of various generations have?
- What kind of training (both in terms of teaching and research) have female academics of different generations received?
- What skills and resources are needed to improve teaching and research?
- How do younger and older generations of female academics perceive and relate to each other?
- Do female academics feel discriminated against or disadvantaged *vis a vis* their male colleagues? If so why and how?
- In how far are female academics involved in collaborations, exchanges and networks with academics outside Iraq?
- What are obstacles for greater international involvement?
- Do female academics experience sectarianism within the workplace? If so, how does it manifest itself?
- How do gender, generation, political affiliation (or not), religious, ethnic and class identities intersect within the university context?

### **Research Team Composition**

**Principal Investigator/Author:** Dr Nadjé Al-Ali, Reader in Gender Studies and Chair for the Centre for Gender Studies, SOAS, University of London. Dr Al-Ali's main research interests revolve around gender theory; feminist activism; women and gender in the Middle East; transnational migration and diaspora mobilization; war, conflict and reconstruction. Her publications include *What kind of Liberation? Women and the Occupation of Iraq* (2009, University of California Press, co-authored with Nicola Pratt); *Iraqi Women: Untold Stories from 1948 to the Present* (2007, Zed Books); *New Approaches to Migration* (2002, Routledge, co-edited with Khalid Koser); *Secularism, Gender and the State in the Middle East* (2000, Cambridge University Press) and *Gender Writing – Writing Gender* (1994, The American University in Cairo Press) as well as numerous book chapters and journal articles. Her most recent book is entitled *Women and War in the Middle East: Transnational Perspectives* (2009, Zed Books, co-edited with Nicola Pratt).

**Co-Investigator:** Huda Al-Dujaili received her MPhil degree from the University of Glasgow in Economic Development and started her academic career as a Faculty Member of the Department of Economics in the College of Administration and Economics at the University of Al-Mustansyria where she taught Economics Development and Principles of Economics. She was Head of the Department of Planning at the same College. She worked at the Baghdad International School as a teacher of O level, IGCSE level and advanced level where she was also the social studies coordinator. After 2003, she started working for several NGOs and Iraqi Foundations as the coordinator for a variety of projects related to education, civil society, election, constitution, women's and human rights with a particular focus on the role of women in democratic societies. She is currently working for the JRS Project in Amman as the Educational Coordinator for Iraqi refugees.

**Co-Investigator:** This investigator is Professor of Media Studies and has been working as a university lecturer in the College of Mass Media at the University of Baghdad since 2001. She is also a member of the Iraqiat Centre for Women's Studies in Baghdad and was the Iraqi project manager for the Open Shutters photography project which involved women from different regions and cities in Iraq. In addition to her teaching and research experiences, she has been working as a journalist and a creative writer, having published several short stories and scripts for documentary films. She is the author of several story collections, including *The Tree of Desires* (1990, Baghdad), *The Dust of Cities* (1993, Baghdad), *In the forest* (1999, Damascus), *At a Distance of Expatriation* (1999, Baghdad) and *Losses* (2004, Sana'a), and a novel *Apples' Scent* (1996, Baghdad).

**Co-Investigator:** Dr Inass A. A. Al-Enezy is a Lecturer in Political Science at the University of Baghdad. She also works as a researcher in a research centre related to the College of Political Science. She has published several articles, including Al-Enezy, I.A.A. Iraqi women between economic unemployment and political participation. Iraqi studies journalist, Center for Strategic Studies, Baghdad, 2006. In addition to her teaching and research experience she has also worked as a trainer in preparation for elections.

## *'Analytical Study of Curricula of Education in Iraq'*

### **Research Summary**

The date April 8 2003 was a dramatic moment of transition in the history of modern Iraq. The question which has remained unanswered, however, is whether there was a real epistemological transformation of knowledge towards a different method of education, or whether Iraq is going in the direction of a purely ideological/political transformation whilst retaining the same cognitive approaches, especially in light of the hegemony of the Islamic parties.

The research aims to examine four subjects in the curricula of primary, elementary and secondary schools in Iraq through analyzing the content of Arabic language textbooks (grammar, literature and reading books); religious education books (Islamic Education, Sciences of Koran); history books (specifically Islamic and modern history), and books on political education, concepts of human rights and principles of democracy.

As well as a field study of the methods that teachers use to deal with the curricula data and the impact of their ethnic, religious and sectarian affiliations in dealing with their students, the research will attempt to define the philosophical basis from which the objectives and contents of curricula were derived by addressing the following questions:

1. What is the image of women in school curricula?
2. What is the image of the *Other* (ethnic, religious and sectarian) in the curricula of education?
3. What are the terms of reference and criteria for formatting the curricula of Islamic and modern history?
4. To what extent is the over-governing of Islamic ideological vision in different education curricula?
5. Do the educational curricula encourage violence, intolerance and extremism?
6. Do the educational curricula enhance the principles of tolerance, the notions of differences and do they encourage respect for political, ethnic or religious difference?
7. How do the curricula deal with controversial issues concerning the variety of religions and sects? Do they have a single or pluralist vision?
8. Is there any discrimination or stereotyping in the curricula?
9. In what terms is the concept of citizenship presented in educational curricula?

The field study will be based on questionnaire forms, to be administered to teachers in different regions. The research questions will include:

1. what is the extent of freedom in dealing with the educational curriculum?
2. Are the terms of teaching the same as before?
3. Is there any adaptation of curricula with the new political situation, and, if so, what are the terms of reference and criteria for this adjustment?
4. Do the teachers teach some of the curricula that they believe don't cohere with these references?
5. How do the teachers deal with differences in giving knowledge to the students?
6. Do the teachers discuss the curricula with the different departments of schools or other departments belonging to educational institutions?
7. How do the teachers deal with the controversial subjects in the final class in national examinations?
8. Is teaching of educational subjects submissive to other considerations such as the affiliations of the students?

### **Research Team Composition:**

**Principal Investigator:** Roger Slee is Professor of Inclusive Education in the Department of Learning, Curriculum and Communication at the Institute of Education, University of London. Before taking up his current post, Roger was the Dean of the Faculty of Education at Canada's McGill University. He has held research chairs at the University of London and the University of Western Australia. Roger was formerly the Deputy Director General of the Ministry of Education in Queensland. He is the author of numerous books and refereed papers on inclusive education and is the Founding Editor of the International Journal of Inclusive Education. He has also been the Editor of the Australian Disability Review. He is a member of the Department of Integrated Studies in Education and the Department of Educational and Counselling Psychology. Roger Slee was formerly Deputy Director General of the Queensland Department of Education, and Dean of Education at the University of Western Australia and Goldsmiths College, University of London

and holds Adjunct Professorial posts at The University of Queensland and Griffith University. A graduate of the University of Queensland and La Trobe University, Roger Slee is the founding editor of the International Journal of Inclusive Education, and is on the editorial boards of numerous other journals. His research interests include disability studies, education policy, social theory, education leadership, and student behaviour.

**Principal Author/Co-Investigator:** This investigator obtained a PhD from the College of Art, Baghdad University. He is a founding member, researcher, and coordinator of the Administrative Board of the Centre for Iraqi Research and member of the administrative Board of the Iraqiat Centre for Studies. He has been working as a visiting researcher at the Institut Français du Proche-Orient (IFPO) in Amman since September 2009. He has long teaching experience at a number of Arab universities, and has published a great number of studies and translations in magazines and Iraqi and Arab Newspapers. He has also participated in many conferences and conventions held in Iraq between 1992 and 2000 and from 2004 to 2006, many of which he also directed. He was the main editor of the human development report on Iraq, UNDP (2008) and participated in writing the book *The social science situation in the Iraqi universities* (2008, the Strategic Studies Institute, Beirut). His latest work involves the participation in two projects and seminars: the first of these focuses on the political role of tribes in Iraq and the second on Islamism and civil society in Iraq.

**Co-Investigator:** This investigator obtained an MA in Arabic Language from the College of Literature, University of Baghdad. He has published several articles about democracy, civil society, political violence and history. Among his latest studies, yet to be published, *The modern Iraq political fantasy, an attempt to understand the political jargon in the Iraqi Scene* and *The precious moments in history, a study of the Arab civil wars*.

**Co-Investigator:** To be identified

**Advisor:** This participant obtained a BA in Arabic literature at Baghdad University in 1986. Since then he has worked in teaching and has worked as a researcher at the Centre for Iraqi Research, focusing on Anthropology, Sociology and Islamic studies. He has published several studies in magazines as well as Iraqi newspapers. He is a member of the Iraqi Writers and Authors Union and the Iraqi Journalists Union. His latest work is entitled *Tribal structure in Al-Sadder city* which was an anthropological study.

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## ***‘Potential use of Trees in Phytoremediation and Phytostabilisation of Heavy Metals in Iraq’***

### **Research Summary**

Metal contamination of food grown in Iraq is known to exceed WHO levels in some regions. Furthermore, there is serious concern about the presence of depleted uranium in Iraq. Consequently, any mechanism for reducing the environmental exposure to depleted uranium will greatly reduce the risk of human exposure.

The aims of this project are to determine the heavy metal tolerance of a range of *Acacia* species that can be used for phytoremediation and phytostabilisation.

We will expose a number of *Acacia* species to cadmium, lead, copper and zinc as well as uranium and investigate the growth of these species and the uptake of the metal into roots and shoots. In further experiments, we will develop techniques for inoculation of *Acacia* with both ecto and arbuscular mycorrhizas in an attempt to improve the growth and metal tolerance of the trees. In addition, we will determine the effect of heavy metals on formation of nitrogen fixing nodules on the *Acacia* roots.

In field investigations, areas contaminated with depleted uranium will be selected and planted with *Acacia*. We will then investigate the uptake of metals into the trees and phytostabilisation of metal in soils at these experimental sites.

### **Research Team Composition:**

**Principal Investigators/Co-Authors:** Douglas Godbold is Professor of Forest Sciences, and David Jones is Professor of Soil and Environmental Sciences at the Environment Centre Wales at Bangor University. Douglas Godbold has over 25 years of experience working with heavy metals and trees; David Jones has over 15 years of experience working with land remediation. Both have published extensively on root and rhizosphere biology. Both Douglas Godbold and David Jones have considerable experience of project

management in both national and international projects. The Environment Centre Wales is a leading centre for environmental research in the UK.

**Co-Author/Co-Investigator:** This investigator is an Iraqi Environmental Researcher.

**Co-Investigator:** This investigator is an Iraqi Environmental Researcher.

**Co-Investigator:** This investigator is an Iraqi Biologist.