Department of Geography
Faculty of Arts and Social Sciences
Te Kura Kete Aronui
The University of Waikato
Private Bag 3105
Hamilton, New Zealand

Lex Chalmers
Phone +64 7 838 4436
Fax +64 7 838 4633
lex@waikato.ac.nz

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

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iGEO Colleagues in Taiwan
The iGEo Field Work Committee
iGEO Marking Panel

Kia ora tatou (Greetings to you all),

At the meeting we had after the announcement of the iGEO results I reported that I would like to comment on the field work assignment in some detail, and the following few pages contain most of the comments I would like to make. I felt the need to comment in this way because we had little time on the night, the field work exercise had a new formality based on the 2009 guidelines we agreed (see Appendix 1), and I was supervising the activity in place of Henk (who could not be with us).

I also wanted to thank colleagues on the Field Work Committee. Under Su-Min Shen's guidance, Sheng-Chin Lin, Tsung-Yi Lin and Chia-Ng Hsu produced excellent resources for the field work, and advised on the setting and assessment of the field work tasks.

1. The mapping exercise.

1.1 I need to comment on the match between the guidelines and the activities/assignments we set in Guandu. The guidelines are just that, guidelines against which each field environment needs to be considered. The final choice of Guandu was made far enough ahead of the iGEO field work to allow excellent resources to be assembled; these will be made available on the web to provide subsequent field work designers with some idea about what will work with students.

1.2 A familiarity tour was scheduled before the assignments were signed off. I thought the environment was excellent; the saline mangrove area now provided only limited habitats for wading birds after the creation of the IUCN Class 1 Nature Reserve in 1986. The contrast with the Guandu Nature Park with the creation of artificial ponds was obvious, even if some of the subtleties were hidden (dumped spoil). The distinctiveness between the two environments was driven by the stop-bank/dike constructed after the 1963 flood (shown on the video). A variety of urban and agricultural uses were included in the mapping area.

1.3 The format of the question was derived from the guidelines. Students had up to 2.5 hours to observe in the field (in reasonably hot conditions: most arrived at the Centre after using little more than half the time available). Forty minutes were set aside for drawing the map on a plastic overlay on an aerial photograph. Students were required to work individually; they were monitored and I had to speak to several students who were about to share information. There were two questions that followed a context statement

1.4 The questions were written as follows:

Context: Part of the Guandu lowland used to be a natural wetland, but human use of Guandu has brought about a transformation from agricultural uses that characterized this area in 1965. Parts of the Guandu Nature

Reserve and the Guandu Nature Park show evidence of significant change. For example building spoil has been deposited in parts of the Nature Park.

1. Annotate the map of the study area on the plastic cover sheet. Describe the types of vegetation, areas of raised relief and the major water management infrastructure that relate to the human use of the area. Your map should also show variations in house style.

2. On your map show the major boundaries between areas where natural changes have occurred and those in which human intervention predominate. Name the features along which these major boundaries are located.

1.5 Mapping outcomes were variable for two reasons. Because the instruction to use one side of the plastic sheet was verbal (several times), and not an absolute requirement written in the extensive instructions, I felt we could not penalise the small but significant minority that keyed their map on the reverse side. Many students did not appreciate that the pens they were given had fine and broad tips at opposite ends. Mapping using only a broad tip was quite difficult on an A4 sheet, but it may have been possible at A3.

1.6 Assessment guidelines. The mapping exercise assessment made up 30% of the Field work mark, and this in turn was 40% of the final mark for the iGEO. There were up two marks available for the effective location and documentation of each of the following features; mangroves, reeds, fields, mixed trees, artificial ponds, natural ponds, housing, flood gate, dike and raised land. Markers had the ability to give credit for well reported key detail, and to recognize good observation not included in the list above. The balance of the 30% was allocated to the boundaries; more than 50% students did not realize they were walking along the stop-bank, and that it was the critical point of separation in terms of both environmental data, and human use. The very first feature they say was a flood gate, but they did not recognize this boundary marker, despite the video they had seen.

1.7 Marker responses. It took a bit of time for panel members to build confidence in the task and the assessment schedule, and to work to a common standard. All maps were marked at least twice, and I personally check marked about half the maps, finding just a few anomalies. I did not have to take any matters to the Committee who signed off on both the activity and the mark schedule. My thanks to the six markers who spent perhaps five hours on this job. The best maps were very good, and there were just a few candidates who scored less than 5-6 out of 30.

2. The spatial analysis and geographical commentary

2.1 The intent of guidelines was written into the classroom test, for which a series of additional resources were provided. The resources include a map that provided a "ideal" map that showed clearly the dike and floodgates. The map complemented the students own maps, which were returned to students for the exercise to avoid "double jeopardy" of a poor map in the first part of the exercise.

2.2 The answers were written on an answer book, for which indicative spaces were provided for candidates' answers. Five minutes were allowed for reading the test, and getting familiar with the new resources provided. The time available for the test was 2 hours for English speakers and 2.5 for those for which English is a second language.

2.3 The questions required two graphics (a time line and a cross section, each worth 10% of the final fieldwork mark). The spatial analysis (changes in space through time) required an understanding of the habitat relationships within the Nature Reserve (20% of the final fieldwork mark). The geographical commentary presented a context statement and then asked students to think about planning for the lowland, to identify the groups who might want to make statements on the future use of the lowland, and to link these interest groups more generally to those that are found in many

urban environments where there is competition for land use.

2.4 The four questions were written as follows:

1. Draw a time line diagram to show the significant changes that have taken place in the parts of the Guandu wetland that you observed. Make sure your diagram shows changes in areas of more natural and more human-induced change.

2. During the 1970s, some people in Taipei argued for the establishment of a natural reserve in the Guandu wetland. The reserve was mainly for protecting the habitat of shorebirds. Using all information available, discuss and analyse the practice of bird habitat protection in the Guandu wetland. What are the advantages and disadvantages of these practices?

3. Using the space provided, draw and annotate a cross section from D to C. The cross section does not have to be true to scale. It is more important to locate and label features accurately. Write notes on your cross section where appropriate.

4. Geographic analysis; issues of land development. Guandu Natural Reserve is dominated by mangroves, one of three major mangrove sites at the river mouth of the Tanshui River. Some bird lovers want to clear the mangroves and to re-create a habitat for migratory shore birds. Others think the mangroves should be preserved as they are now, and it would be risky to change the law that gave protection to this area in the first place. There is also pressure to access more land for urban development.

As a city planner, with some knowledge of the area, give four arguments that you would expect to hear in a meeting about the future of the Guandu wetland. What labels would you give the various interest groups that make these arguments? To what extent are the arguments common in urban communities everywhere?

2.5 Assessment guidelines. Time line. For the time line the conventional use of the 'x' axis for time was recognized and balanced use of graphical space and/or use of a title will score the second 'conventional' mark. The emphasis in the exercise is transferring text (resource 19) to a diagram, with some expansion. Use of aerial photographs was regarded as less appropriate. The dates expected were (a) the cyclone/storm surge of 1963 that lead to (b) plans that saw the completion of the stop-bank by 1968 and (c) the creation of a World Commission on Protected Areas (WCPA, see resource 18) Status 1 Reserve in 1986. (d) The Guandu Nature Park was established in 1996 (level 4 WCPA) with high visitor numbers for ecological education and (e) in 2010 the clearing of the mangroves to restore the shore-bird's habitat has become an issue. There are other things that qualified and students were scored up to 1.5 marks for each/any of the best four reasonable events if they are plotted in the correct sequence. A reasonable level of detail was required for each 1.5, and lesser marks were available. Note some level of student selectivity is required in what was shown; the task was to draw a diagram, not write an essay. The final two marks were for differentiation of changes in the natural areas (such as growth of mangroves) from those in the Nature Park area (construction of Nature centre/establishment of themed areas for visitors). Up to two marks may be assigned to this differentiation.

2.6 Spatial analysis. This answer needed material that relates to one interest group in Guandu, bird advocates who appreciate the significance of the original estuarine habitats (sources 8 and 9) on the migratory bird patterns of the western Pacific (source 16). The answer was expected to have a descriptive section (discuss and analyse bird habitat protection) and also a higher level reflection on these practices (advantages and disadvantages). Responses to the second task are based on student reflection. In terms of assessment we used a standards based system. We assessed whether students had:

- Not achieved the standard of answer expected (0, 4, 7 marks)
- Achieved the standard (9,12 marks)
- Achieved the standard with merit (14, 15 marks)

- Achieved the standard with excellence (16, 18 marks)

The descriptive text about practices was expected to include: exclusion of the public from Class I reserves, supporting ecological rather than species preservation, construction of artificial wetlands in Class IV , taking advantages of habitat for observation, erecting interpretive education panels, providing guiding and information services at the Centre, habitat protection through pollution control. When reading the text, assessors will establish the standard; the description of two clear practices will meet the standard, up to four practices are required for merit, and more than four practices will be rewarded with excellence.

For the second task, the word "analyse" allows students to indicate their own thinking about advantages and disadvantages. Biodiversity and sustainability points can be accepted. Negative impacts such as wetland siltation or the impact on the local community may be identified. Students may argue that "helping nature" may not provide the optimal natural outcome, and the establishment of the Reserve was a commendable short action with unpredictable long-term consequences. Student may understand that this is an issue at a local scale that has impacts at a regional or global level. Two good arguments are required to achieve the standard, three for merit, and four or more for excellence.

The assessment schedule had to be referred to the Committee and the mark distribution for the question (not advised to students) was adjusted to a weighting that assigned equal marks to each part of the question. Markers felt that the subtlety of the word "practice" as a collective noun would be missed by students who may respond with only one practice; the Committee supported this view. The answers were read by two markers and most were moderated by the supervisor with no significant changes.

2.7 Cross section. Students had access to a good quality resource for this task (see source 24). While the guidelines say that scale precision is not required, a reasonable sense of proportion, and level of vertical exaggeration is required. Up to 2.5 marks were awarded for graphical effectiveness of the cross section with the balance of the marks for the locationally accurate transfer of data to a diagram format. The expected direction of the profile was D-C. The cross section was expected to show/label the following features: the estuary (Danshui/Kleelung rivers) mangrove belts, stop-bank/dike/embankment, mixed trees (on slightly elevated land), a (freshwater) pond, reeds in wetlands, wild-life ponds below the bird watching sites, environmental educational sites (see source 6) and the Guandu (Nature Park) Education Centre. Up to 1.5 marks were awarded for every well labeled feature shown on the cross section.

2.8 Commentary. The task required three specific types of information; (i) the identification of (at least) four arguments that might be put forward about the future of Guandu, (ii) the identification of labels for these broad sets of ideas and arguments (allowing overlap) and (iii) an assessment of the extent (or not) that the arguments are common to urban communities (with examples) . Examples of the labels that might be used for interest groups in the Guanda case are local people, industrial and residential developers, ornithologists (specific) and environmentalists (generic), legal/administrative people advocating the status quo, local and central government officers, tourist operators. Standards-based assessment was used to evaluate question four. All essays were marked by the first reader and cross checked by the second reader or supervisor. Neatness was not an assessment criteria; legibility was queried only with respect to meaning.

2.9 The essay was marked by identifying one of four bands into which the essay fell. The range was

00-12 out of 30 Requirements not achieved. Where the text was brief and the response clearly identifies one or two key interest groups. There was limited reference to the source data.
13-18 out of 30 Requirement achieved. The arguments of at least two interest groups were identified and

described. The text offered some connection to the resources provided.
19-24 out of 30 Requirements achieved with excellence. The response identified at least three interest groups, recognizing their arguments and labeling them appropriately.
24-30 out of 30 Requirements achieved with excellence. The response identified at least four interest groups, sometimes recognizing several arguments and labeling them appropriately. The answer was extensive, diagrams were provided, the text made clear use of the resources provided, and incorporated more general geographical knowledge, including the identification of examples where similar contests for conservation land were encountered in urban space. Appropriate strategies for planners may be included (consultation/hearings).

The assignment of final marks from the essay was done at the end of the exercise; assessors decided if there are two or three bands within each level. There were concerns about the difficulty of assessing this activity, but the markers and supervisor resolved issues early in the process, and little moderation was required. The best answers scored very close to the top of the range, only a few answers failed to achieve the standard expected.

3. Overall assessment

The marks for the field mapping and written field work assignment were lower than expected but the range (26.8-7.6/40) was approximately the same as for the written response test (34-13/40). The component marks for most candidates were consistent; if they scored well on one item, they scored well on most and vice versa. The markers did an excellent and collegial job; only one of the five tasks required extensive moderation, and only one task required Committee approval for a change in the assessment initially agreed.

For information, neither scripts nor marks for the components of the field work will be made available, and papers will not be returned to students.

I am grateful to the team that prepared the resources, and to those who committed so much time to the assessment process. I remain happy with the outcome, but welcome specific questions and general comments

With best wishes,

Lex Chalmers,
Convener, FWT Marking Panel

Appendix 1. The Taipei Field work Exercise

(Important note, this is an adaption of the advised
Guidelines to meet the specific field context of Taipei)

Format of the exercise

The field work assignment consists of three parts: a mapping exercise, spatial issue relating to the field area, and a geographical analysis and commentary

Part 1: the mapping exercise. Part 1 will take place in the field. Skills that are required during the mapping exercise are observation, naming observed phenomena, locating the phenomena on the map, describing the phenomena in a map key, using appropriate graphic symbols, including scale and orientation statements. Students could, for instance, be provided with a base map and asked to add information to it using cartographic skills.

Part 2: the spatial analysis exercise. Part 2 will take place in the classroom where a spatial problem will be presented to participants for analysis. The problem may relate to physical and/or environmental planning. The problem will be introduced and documented for participants and the procedures and conditions for working on the problem-solving exercise will be outlined. The introduction to this exercise can be done in a number of ways: a presentation, a workshop and/or short excursions to the field area for gathering additional data.

Phase 3: geographical analysis and commentary. On the basis of the mapping exercise and spatial analysis in the area, participants have to respond to the problem presented, and explain their responses. The commentary needs to show that the participant has understood the nature of the problem and made connections between the properties/qualities of the field area and the spatial analysis they have carried out. In the commentary, the use of pictures, statistics, tables and graphs is preferred over lengthy texts.

Assessment of the exercise

The field work assignment is worth 40% of the final mark.
The field work assignment is carried out by individuals not teams.
The mapping exercise and commentary are mandatory parts of the assignment
The nature of the additional information provided is determined by the host.
The following components will be assessed

- The map of (a part of) the fieldwork area,
- The problem-solving exercise, to include spatial analysis of the problem presented,
- The visualisation of the field work area,
- The commentary on a suggested plan/strategies/activities.

Required skills for the field work exercise

- mapping skills (read, analyse, interpret and produce maps)
- inquiry and problem solving skills that underpin geographical writing (thinking and writing skills)
- graphicacy skills (produce pictures, statistics, tables and graphs)

In May – July 2009 a draft of these guidelines was sent for comment to International Board members in all countries that participated in iGeo 2008. The guidelines were formalised by the iGeo Task Force on September 15, 2009. The local organiser of iGeo 2010 in Taiwan therefore had sufficient time to design the fieldwork exercise, and all team leaders time to prepare their participants for the fieldwork and related assignments. The guidelines will be reviewed for the 2012 iGEO field work test in Cologne, and any changes will be advised.