Institut für Geodäsie und Photogrammetrie
an der Eidgenössischen
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46

Control Networks Large Scale Mapping Legal Surveys, Cadastre Land Property Registration Land Information Systems around the World

an International Inquiry in all FIG-Countries

by

H. J. Matthias

June 1990

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Auflage: 550 Exemplare

Preface

The author has made an effort to collect as many detailed information as possible from all the 53 FIG-membership-countries on the subjects mentioned in the title. For this purpose a special questionnaire was set up. 37 member associations submitted their answers. The remaining part did not react so far, inspite of several reminders. In this report, which has been prepared in view of the FIG-congress 1990 in Helsinki, all the answers are published. The author would like to express his gratitude to all the contributors in the various countries for their most valuable co-operation. Maybe, such information-collecting campaigns could be repeated from time to time in order to complete and update this zero-inquiry.

Vorwort

Der Autor hat in den letzten Jahren versucht, in allen 53 Ländern der FIG-Gemeinschaft über die im Titel genannten Gegenstände viele detaillierte Informationen zu sammeln und auszuwerten. Dafür hat er einen besonderen Fragebogen entwickelt. Von 37 Mitgliedgesellschaften sind Antworten eingetroffen. Von den übrigen sind die Antworten, trotz mehrmaliger Nachfrage, bisher ausgeblieben. In dieser Publikation, die im Hinblick auf den FIG-Kongress 1990 in Helsinki erschienen ist, sind alle Antworten zusammengefasst. Allen Informanten in den verschiedenen Ländern dankt der Autor für ihre wertvolle Mitarbeit. Vielleicht eignet sich die hier vorgelegte Arbeit dazu, von Zeit zu Zeit wiederholt und dabei aufdatiert zu werden.

Préface

Au cours des années passées l'auteur a fait un effort d'obtenir de toutes les 53 associations-membres FIG autant d'informations détaillées que possible sur les sujects mentionnés dans le titre. Pour ce but un questionnaire a été concis. 37 réponses ont été reçues. Malgré de rappels à maintes reprises, les autres membres n'ont pas encore répondu. Cette publication, editée en vue du congrès FIG 1990 à Helsinki, présente toutes les réponses. L'auteur remercie à tous les informateurs des pays divers de leur collaboration précieuse. Peut-être serait-il recommandable de répéter cette enquête de temps en temps et ainsi de la mettre à jour et de la compléter.

During all the years since 1982, the following collaborators have been of great help to the author in producing this publication; he therefore would like to thank them for their kind co-operation: Mr. Y. Chopard, Mr. J. Cutka, Mrs. R. Daubenfeld, Mr. G. Horner, Mrs. S. Lienhard, Mrs. R. Trefalt, Mrs. S. Wanner, Mrs. C. Zuellig.

Contents

Explanatory Comments

for your kind attention

On page no. 9 to 13 a questionnaire is presented in full size, just as it was sent to all FIG-countries. The answers filled in there, are those valuable for Switzerland.

On page no. 15 to 97 the answers received from the other FIG-countries are published in a much more condensed way: The reader will find one list-page per country, giving all "x,o"-information corresponding to the question-numbers of the questionnaire.

Most of these lists are accompagnied by verbal comments on a separate sheet(s). Each of these verbal comments concern the corresponding cross marks (*) on the list page.

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CONTROL NETWORKS, LARGE SCALE MAPPING, LEGAL SURVEYS, CADASTRE, LAND PROPERTY REGISTRATION, LAND INFORMATION SYSTEMS IN 37 COUNTRIES AND STATES AROUND THE WORLD

Country : SWITZERLAND

Legend : N [ ] indicate number (e.g. N [1.5])
xo [ ] x = yes (e.g. xo [x])
o = no

1. TRIANGULATION OF LOWEST ORDER

(3rd, 4th or 5th order triangulation net which is not limited to communities,but covers the entire country)

1.1 from N [1] to N [4] — Density of control points
Number of points per km²

1.2 — Kinds of marking points

1.21	xo	[x]	 Granite stone
1.22	xo	[x]	Underground monument
1.23	xo	[x]	 Metal monument in rock
1.24	xo	[x]	 Inaccessible high points
1.25	xo	[x]	 Accessible high points

1.3 — Network, methods

1.31	xo	[x]	Triangulation networks with angle measurements
1.32	xo	[x]	Triangulation networks with distances
1.33	xo	[x]	Triangulation networks, both combined
1.34	xo	[o]	Traverse networks

1.4 — Accuracy
Standard deviation of adjacent points

1.41	N	[1 - 2]	of coordinates y, x (in cm)
1.42	N	[1 - 2]	of heights (in cm)

1.5 % [98] — Completion over the entire country (approx., in %)

2. BASE MAP

2.1 xo [x] — Does an official base map with topographic content (scale 1:10'000, 1:5000, 1:2500) exist in your country ?

2.2 approx. N [90] To what extend (in %) of the country's surface is the base map completed ?

2.3 1: N [5000 / 10000] What is its scale in 1: scale number (N) ?

2.4 Objects of mapping

2.41	xo	[x]	Natural cover of surface
2.42	xo	[x]	Artificial cover of surface : buildings, plants
2.43	xo	[o]	Property limits
2.44	xo	[x]	Topography

2.5 Application of orthophotos

2.51	xo	[o]	partly
2.52	xo	[o]	always

3. MARKING OF PROPERTY LINES AND TERRITORIAL BOUNDARIES

(Marking : Monumenting of points)

3.1 Is the marking of property lines

3.11	xo	[x]	compulsory
3.12	xo	[o]	optional

3.2 Are there other kinds of boundaries being marked ?

3.21	xo	[x]	National borders
3.22	xo	[x]	Borders of states, counties, departments
3.23	xo	[x]	Community borders
3.24	xo	[x]	Lines of limited rights in real estate

3.3 Materials used for marking

3.31	xo	[x]	Stones
3.32	xo	[x]	Metal monuments
3.33	xo	[x]	Wooden posts
3.34	xo	[x]	Iron pipes or bars

3.4 Protection

xo [x] Is the marking of boundary points protected by penal law ?

4. CADASTRE, LEGAL SURVEYING

4.1 from N [0.5] to N [8] Density of control points of cadastral surveys
Number of points per ha.

4.2 Kinds of cadastre

4.21	xo	[o]	Graphic cadastre (graphic survey methods, graphic plotting)	All kinds existing
4.22	xo	[x]	Partly graphic (numeric survey methods, graphic plotting)	
4.23	xo	[x]	Numerical cadastre (numeric survey and output, databanks, digital-graphic output)	

4.3 Methods of surveying

4.31	xo	[o]	Plane table with alidade	Formerly; not any more
4.32	xo	[o]	Analogue graphical photogrammetry	
4.33	xo	[x]	Analogue and analytical photogrammetry	
4.34	xo	[x]	Orthogonal methods	
4.35	xo	[x]	Polar methods	

4.4 Objects of survey

Facts

4.41	xo	x	Natural cover
4.42	N	10	Number of different kinds of cultivation and land use
4.43	xo	x	Artificial cover, man-made structures (buidings, plants, roads, etc.)
4.44	xo	o	Topography

Rights

4.45	xo	x	Ownership
4.46	xo	o	Restrictions on ownership, all restrictions registered
4.47	xo	o	Restrictions on ownership, only partly registered
4.48	xo	o	Limited rights on lands, all restrictions registered
4.49	xo	x	Limited rights on lands, only partly registered

4.5 Scales (1: scale number)

4.51	from N	10K	to N	2K	Wooded areas, forests
4.52	from N	5K	to N	1K	Rural areas
4.53	from N	1K	to N	.25K	Urban areas

4.6 System of map projection

4.61	xo	x	conformal projection
4.62	xo	o	equal-area projection

4.7 Accuracy : relative mean square error of adjacent points

4.71	from N 2	to N -	of coordinates y,x of control points in cm
			of coordinates y,x (graphic or numeric) of boundary points in
4.72	approx. N	10 - 20	wooded areas, in cm
4.73	approx. N	5 - 10	rural areas, in cm
4.74	approx. N	3	urban areas, in cm

4.8 % 50 Percentage of completion of cadastre surveying of the entire country´s surface

4.9 Levelling networks in communities

4.91	xo	o	Do such networks exist in the urban zones ?
4.92	from N 10	to N 20	Standard deviation of height-differences between two adjacent control points, in mm

4.10 Do any kinds of multipurpose cadastres exist ?

4.10.1	xo	o	Presently being established for the whole country
4.10.2	xo	o	Completed for the whole country
4.10.3	xo	o	Does a legal base exist for such cadastres ?
4.10.4	xo	x	Presently being established for communities
4.10.5	xo	x	Completed in some communities
4.10.6	xo	x	Does a legal base exist in certain communities ?

4.11 Are there any kinds of data banks on real estate ?

4.11.1	xo	o	Being established for the whole country
4.11.2	xo	o	Completed for the whole country
4.11.3	xo	o	Does a legal base exist for that purpose ?
4.11.4	xo	x	Being established for communities
4.11.5	xo	x	Completed for certain communities
4.11.6	xo	o	Are there legal bases in certain communities ?

4.12			Are there any kinds of land information systems ?
4.12.1	xo	[o]	Presently being established for the whole country
4.12.2	xo	[o]	Completed for the whole country
4.12.3	xo	[o]	Does a legal base exist for that purpose ?
4.12.4	xo	[o]	Presently being established for certain communities
4.12.5	xo	[o]	Completed in some communities
4.12.6	xo	[o]	Does a legal base exist in certain communities ?
5.			**PUBLIC REGISTER ON RIGHTS IN REAL ESTATE**
5.1	xo	[x]	Does such a register exist ?
5.2			For what purpose ?
5.21	xo	[o]	Tax purposes
5.22	xo	[x]	Legal purposes
5.3			System of registration
5.31	xo	[o]	"Register of Deeds" ; i.e. registration of documents only ; (so-called "negative system")
5.32	xo	[x]	"Register of Titles" ; i.e. registration of rights ; (so-called "positive system")
5.4			What kinds of legal estates are registered ?
5.41	xo	[x]	Ownership
5.42	xo	[x]	Easements
5.43	xo	[x]	Mortgage
5.44	xo	[x]	Convenants
5.45	xo	[x]	Public restrictions of ownership
5.5			Registration is
5.51	xo	[o]	Optional
5.52	xo	[x]	Compulsory
5.6			Legal force of registration
5.61	xo	[x]	Negative effect (unregistered rights are assumed to be not existing)
5.62	xo	[x]	Positive effect (registration is assumed to be correct)
5.63	xo	[x]	Will a person be protected for her/his interests in land legally acquired, relying on registration ?
5.64	xo	[x]	Is the state liable for damage caused by faulty registration ?
5.65	xo	[x]	Are the cadastral maps part of the register ?
6.			**LEGAL GROUNDS, PROFESSIONAL TRAINING, QUALIFICATIONS REQUIRED**
6.1			Legal base
	xo	[o]	Is there a law in your country concerning geodesy, land surveying and cartography ?
6.2			What levels of education in land surveying do exist in your country ? (Terminology according to UNESCO)
6.21	xo	[x] (U)	University level (tertiary, universitary level)
6.22	xo	[x] (E)	Studies and professional training others than university ; e.g.: Engineering Colleges (tertiary level, non universitary)
6.23	xo	[x] (Q)	Higher qualifying examination with officially recognised licenses (secondary level)
6.24	xo	[x] (A)	Apprenticeship or vocational training, with final examination, officially recognised (secondary level)

6.3 Quota of practicians with the following educational background in percentage

6.31	% [28]	(U)
6.32	% [11]	(E)
6.33	% [20]	(Q)
6.34	% [41]	(A)

6.4 Is a license required for independent legal survey mandates ?

6.41	xo [x]	Generally
		Or particularely for :
6.42	xo [x]	Triangulation of lowest order
6.43	xo [x]	Base map
6.44	xo [x]	Marking of property lines and territorial boundaries
6.45	xo [o]	Legal, cadastral surveying / Data base / Land information systems
6.46	xo [o]	Public register on rights in real estate

6.5 Nationalisation of cadastral surveying

6.51	xo [o]	Cadastral surveying completely done by governmental organisations
6.52	xo [o]	Cadastral surveying partly done by governmental organisations ← Very little done by the government
6.53	xo [x]	Completely done by private enterprises

6.6 Indicate the percentage of responsibility
(s : state versus p : private)

		%		%	
					Triangulation of lowest order
6.61	s	[100]	p	[0]	Supervision
6.62	s	[40]	p	[60]	Establishing of new networks
6.63	s	[80]	p	[20]	Maintenance
					Base map
6.64	s	[100]	p	[0]	Supervision
6.65	s	[10]	p	[90]	Establishing of new marks
6.66	s	[15]	p	[85]	Revision
					Marking of property lines and territorial boundaries
6.67	s	[100]	p	[0]	Supervision
6.68	s	[10]	p	[90]	Establishing of new markings
6.69	s	[5]	p	[95]	Maintenance, alterations
					Legal, cadastral surveying / Data base for real estate / Land information systems
6.70	s	[100]	p	[0]	Supervision
6.71	s	[10]	p	[90]	Establishing of new cadastres, data banks
6.72	s	[5]	p	[95]	Maintenance, revision
					Public register on rights in real estate
6.73	s	[100]	p	[0]	Supervision
6.74	s	[100]	p	[0]	Establishing of new registers
6.75	s	[100]	p	[0]	Single entries

Continent	Country	State, District	Informant	NE
OCEANIA	**Australia**	New South Wales	I.P.Williamson	**AU**

*1.1	-	*4.1	-	4.10.5	o	*6.1	o
1.2		4.2		4.10.6	o		
1.21	x	4.21	o			*6.2	
1.22	x	4.22	o	*4.11		6.21	x
1.23	x	4.23	x	4.11.1	o	6.22	x
1.24	-	4.3		4.11.2	o	6.23	x
1.25	x	4.31	o	4.11.3	o	6.24	x
1.3		4.32	o	4.11.4	o		
1.31	x	4.33	o	4.11.5	o	*6.3	
1.32	x	4.34	o	4.11.6	o	6.31	50
1.33	x	4.35	x			6.32	50
1.34	x	4.4		*4.12		6.33	0
1.4		4.41	o	4.12.1	o	6.34	0
1.41	-	4.42	-	4.12.2	o		
1.42	-	4.43	o	4.12.3	o	6.4	
1.5	100	4.44	o	4.12.4	o	6.41	x
		4.45	x	4.12.5	o	6.42	o
2.1	x	4.46	o	4.12.6	o	6.43	x
2.2	100	4.47	x			6.44	x
2.3	it varies	4.48	o	*5.1	x	6.45	x
2.4		4.49	x	5.2		6.46	x
2.41	-			5.21	o		
2.42	-	*4.5		5.22	x	6.5	
2.43	-	4.51	-			6.51	o
2.44	-	4.52	-	5.3		6.52	x
2.5		4.53	-	5.31	x	6.53	x
2.51	-	*4.6		5.32	x		
2.52	x	4.61	-	*5.4		6.6	
		4.62	-	5.41	x	*6.61	-
*3.1		*4.7		5.42	x	*6.62	-
3.11	x	4.71	-	5.43	x	*6.63	-
3.12	o	4.72	-	5.44	x	*6.64	100/ 0
3.2		4.73	-	5.45	o	*6.65	-
3.21	x	4.74	-			*6.66	-
3.22	o	4.8	100	*5.5		*6.67	-
3.23	o	4.9		5.51	x	*6.68	-
3.24	x	4.91	x	5.52	o	*6.69	-
*3.3		4.92	-	5.6		6.70	100/ 0
3.31	x	*4.10		5.61	x	6.71	50/ 50
3.32	x	4.10.1	o	5.62	x	6.72	0/ 0
3.33	x	4.10.2	o	*5.63	x	*6.73	-
3.34	x	4.10.3	o	*5.64	x	*6.74	-
*3.4	x	4.10.4	o	*5.65	o	*6.75	-

Control networks, large scale mapping, legal survey, cadastre, land property registration, land information systems in 37 countries and states around the world	Prof. Dr. H.J. Matthias Federal Institute of Technology Dept. of Geodesy and Photogrammetry CH - 8093 Zurich

Continent	Country	State, District	Informant	NE
OCEANIA	**Australia**	New South Wales	I.P.Williamson	**AU**

1.1 The triangulation network in NSW (and all states of Australia) is used for topographic and cadastral mapping. No cadastral surveys are connected into the system. They are all based on isolated surveys.

3.1 Some property boundaries are allowed to be compiled in simple subdivisions but only if there is an acceptable survey for the parcel being subdivided.

3.3 Cadastral boundaries in Australia are generally marked with wooden pegs; with every 2nd or 3rd corner also marked with a reference mark. Corners are not on any coordinated system. The majority of corner marks are wooden pegs or drill holes in rock. The majority of reference marks are iron tubes or pipes, or rock marks.

3.4 There is a fine if marks are wilfully destroyed however it is not a criminal offence.

4.1 The Australian cadastral system is not based on a coordinated survey system; all surveys are for individual parcels and "float in isolation".

4.5 All states have cadastral mapping but it is not part of the title registration system. It is prepared in an ad hoc manner by various authorities. It ranges in urban areas from 1:500 - 1:4'000 and in rural from 1:10'000 - 1:100'000.

4.6 4.6 and 4.7 are not applicable. However there are moves in NSW
4.7 to introduce a coordinated survey system based on the Transverse-Mercator projection with two degree zones. The rest of Australia has adopted six degree zones. To date this control covers all of the state of NSW at varying densities and is only used for engineering surveys (and then only sometimes) and mapping. NSW is the most advanced state in Australia in this regard with the exception of the Capital Territory.

4.10 Some states are in the process of introducing land information systems. South Australia and Western Australia already have operating systems incorporating all details of land parcels in their states in computer form. NSW is introducing computerised titles - there will be no paper record.

Continent	Country	State, District	Informant	NE
OCEANIA	**Australia**	New South Wales	I.P.Williamson	**AU**

Australian states operate central land registries i.e. one per state. For example, the registry in NSW has records for 2.5 million parcels in one building.

4.11 Again some states have such data bases. They are based on the
4.12 legal parcel and are updated by the title registration system, however they are separate entities to the registration system.

5.1 All Australian states operate the Torrens System of title registration. The states of Queensland, Western Australia, South Australia, Australian Capital Territory and the Northern Territory are totally under this system. NSW, Victoria and Tasmania (the oldest states) have from 5-10% of parcels remaining under deeds registration.

5.4 Certain public restrictions on land are registered i.e. access to minerals etc., however planning restrictions are not registered.

5.5 Registration is obligatory under Torrens System. There is no compulsion to convert deeds registration to title registration except in certain circumstances.

5.63 The government guarantees the Torrens System.

5.64 The state guarantees compensation for losses caused by faulty registration however if the fault was caused by an incorrect survey the state would take an action to recover the money paid by the state, from the surveyor.

5.65 Cadastral maps in the European sense are not part of the register. Individual survey plans (not coordinated) only are part of it.

6.1 Only land surveying or concerning property boundaries. In Queensland and South Australia there are Surveyors Acts covering registration in related surveying areas.

6.2 In general a three or four year University degree is the academic requirement. This is followed by two years practical experience under articles in certain areas of surveying. Students must then sit for a comprehensive practical, written and oral exam; pass rate is approximately 30-40% in these registration exams.

Continent	Country	State, District	Informant	NE
OCEANIA	**Australia**	New South Wales	I.P.Williamson	**AU**

6.3 University graduates only can become professional surveyors. The students from the Technical colleges become engineering surveyors or technicians.

6.61-6.63 This triangulation survey has no relationship to cadastral surveying in Australia.

6.67-6.69 Virtually no maintenance or conservation of cadastral surveys or markings is carried out. In time the vast majority of all marks disappear and boundaries are redefined by occupations.

6.73-6.75 The title register is maintained by the government - most conveyancing is done by private solicitors.

6.64-6.66 The basic charting map in the Land Titles Office is updated by that office.

Continent	Country	State, District	Informant	NE
OCEANIA	**Australia**	Northern Territory	P.A.Verrall	**AU**

*1.1	1 - 2	4.1	1 - 2	4.10.5	o	6.1	x
*1.2		4.2		4.10.6	o		
1.21	o	*4.21	x			6.2	
1.22	x	4.22	o	4.11		6.21	x
1.23	x	*4.23	x	4.11.1	x	*6.22	x
1.24	x	4.3		4.11.2	x	*6.23	x
1.25	x	4.31	o	4.11.3	x	6.24	o
1.3		4.32	o	4.11.4	o		
1.31	x	4.33	o	4.11.5	o	6.3	
1.32	x	4.34	x	4.11.6	o	6.31	40
1.33	x	4.35	x			6.32	20
1.34	x	4.4		4.12		6.33	40
1.4		*4.41	o	4.12.1	x	6.34	0
1.41	2 - 5	*4.42	-	4.12.2	x		
1.42	1 - 2	*4.43	o	4.12.3	x	6.4	
*1.5	1	*4.44	o	4.12.4	o	6.41	x
		4.45	x	4.12.5	o	6.42	x
*2.1	o	4.46	o	4.12.6	o	6.43	x
2.2	-	4.47	x			6.44	x
2.3	-	4.48	o	5.1	x	6.45	x
2.4		4.49	x	5.2		6.46	o
2.41	-			5.21	o		
2.42	-	4.5		5.22	x	6.5	
2.43	-	*4.51	2 K - 10K			6.51	o
2.44	-	*4.52	2 K - 10K	5.3		6.52	x
*2.5		*4.53	0,5K - 2,5K	5.31	o	6.53	o
2.51	-	4.6		5.32	x		
2.52	-	4.61	x	5.4		6.6	
		4.62	o	5.41	x	6.61	100/ 0
3.1		4.7		5.42	x	6.62	95/ 5
3.11	x	4.71	2 - 5	5.43	x	6.63	100/ 0
3.12	o	4.72	10 - 20	5.44	x	6.64	100/ 0
3.2		4.73	10 - 20	5.45	x	6.65	95/ 5
3.21	x	4.74	2			6.66	100/ 0
3.22	x	4.8	5	5.5		6.67	50/ 50
3.23	o	4.9		5.51	o	6.68	50/ 50
3.24	x	*4.91	o	5.52	x	6.69	100/ 0
3.3		4.92	4 - 10	5.6		6.70	100/ 0
3.31	x	4.10		5.61	x	6.71	100/ 0
3.32	x	4.10.1	x	5.62	x	6.72	100/ 0
3.33	x	4.10.2	x	5.63	x	6.73	100/ 0
3.34	x	4.10.3	x	5.64	x	6.74	100/ 0
3.4	x	4.10.4	o	5.65	x	6.75	100/ 0

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Continent	Country	State, District	Informant	NE
OCEANIA	**Australia**	Northern Territory	P.A.Verrall	**AU**

1.1 1st and 2nd order cover the Northern Territory. 3rd and 4th order for local control for orthophotomaps and photogrammetric control.

1.2 Buried spikes, concrete posts, nails in kerbing and bitumen roads.

1.5 Settled areas only.

2.1 Urban 1:2'500 / 1:5'000 ; rural 1:30'000 ; cadastral boundaries only.

2.5 1:2'500 othophoto maps for major settled areas in planning stage.

4.21 4.23 Graphic and numeric cadaster combined.

4.41-4.44 Gathering of these facts classed as Engineering Surveys or Topographic Surveys.

4.51-4.53 Variable - depends on i) area covered ii) amount of detail to be shown at property corners iii) number of allotments.

4.91 Bench marks available, but no network adjustment.

6.22 Institute of Technology

6.23 Old system of articles to licensed surveyor discontinued; replaced by University study.

Continent	Country	State, District	Informant	NE
OCEANIA	**Australia**	Queensland	N.G.Divett	**AU**

1.1	0,7 - 0,007	4.1	-	4.10.5	o	6.1	x
1.2		4.2		4.10.6	o		
1.21	x	4.21	o			6.2	
1.22	o	4.22	o	4.11		6.21	x
1.23	x	4.23	x	4.11.1	o	6.22	o
1.24	x	4.3		4.11.2	o	6.23	o , formerly
1.25	x	4.31	o	4.11.3	o	6.24	o , formerly
1.3		4.32	o	4.11.4	o		
1.31	-	4.33	x	4.11.5	o	6.3	
1.32	x	4.34	o	4.11.6	o	6.31	38
1.33	-	4.35	x			6.32	0
1.34	-	4.4		4.12		6.33	
1.4		4.41	o	4.12.1	o	6.34 }	62
1.41	-	4.42	0	4.12.2	o		
1.42	-	4.43	x	4.12.3	o	6.4	
1.5	-	4.44	o	4.12.4	x , a few	6.41	x
		4.45	x	4.12.5	x	6.42	o
*2.1	x	4.46	o	4.12.6	o	6.43	o
2.2	100	4.47	o			6.44	x
*2.3	-	4.48	o	5.1	x	6.45	o
2.4		4.49	x	5.2		6.46	o
2.41	x			5.21	x		
2.42	x	*4.5		5.22	x	6.5	
*2.43	x	4.51	-			6.51	o
2.44	x	4.52	25 K - 250K	5.3		6.52	x
2.5		4.53	2,5K - 10K	5.31	o	6.53	o
2.51	x	4.6		5.32	x		
2.52	o	4.61	x	5.4		6.6	
		4.62	o	5.41	x	6.61	90/ 10
3.1		*4.7		5.42	x	6.62	90/ 10
3.11	x	4.71	-	5.43	x	6.63	100/ 0
3.12	o	4.72	-	5.44	x	6.64	100/ 0
3.2		4.73	-	5.45	x	6.65	95/ 5
3.21	o	4.74	-			6.66	100/ 0
3.22	o	4.8	100	5.5		6.67	50/ 50
3.23	o	4.9		5.51	o	6.68	20/ 80
3.24	x	4.91	x	5.52	x	6.69	0/100
3.3		*4.92	-	5.6		6.70	90/ 10
3.31	-	4.10		5.61	x	6.71	80/ 20
3.32	x	4.10.1	o	5.62	x	6.72	100/ 0
3.33	x	4.10.2	o	5.63	x	6.73	100/ 0
3.34	x	4.10.3	o	5.64	x	6.74	100/ 0
3.4	x	4.10.4	o	*5.65	o	6.75	100/ 0

Control networks, large scale mapping, legal survey, cadastre, land property registration, land information systems in 37 countries and states around the world	Prof. Dr. H.J. Matthias Federal Institute of Technology Dept. of Geodesy and Photogrammetry CH - 8093 Zurich

Continent	Country	State, District	Informant	NE
OCEANIA	**Australia**	Queensland	N.G.Divett	**AU**

2.1 The basic map is not used for legal purposes.

2.3 Various depending on density of development up to 1:250'000.

2.43 Some scales only

4.5 Survey plans at various scales to suit each particular circumstance. The figures quoted are for cadastral maps compiled from registered survey plans.

4.7 Cadastral maps have stated accuracy of 0.5 mm at map scale.

4.92 $.012\sqrt{k}$ mm where k is the distance between marks.

5.65 Individual survey plans are registered.

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Continent	Country	State, District	Informant	NE
OCEANIA	**Australia**	Western Australia	J.G. Morgan	**AU**

*1.1	1-4	*4.1	0,1-2,0	4.10.5	x	*6.1	o
1.2		4.2		4.10.6	x		
1.21	o	4.21	x			6.2	
1.22	x	4.22	o	4.11		6.21	x
1.23	x	4.23	o	4.11.1	x	6.22	x
1.24	o	4.3		4.11.2	x	6.23	x
1.25	x	4.31	o	4.11.3	x	6.24	o
1.3		4.32	o	4.11.4	x		
1.31	-	4.33	o	4.11.5	x	6.3	
1.32	-	4.34	x	4.11.6	x	6.31	25
1.33	-	4.35	x			6.32	50
1.34	-	4.4		4.12		6.33	25
1.4		4.41	o	*4.12.1	x	6.34	0
1.41	1-2	4.42	-	*4.12.2	o		
1.42	1-2	4.43	o	*4.12.3	o	6.4	
1.5	1	4.44	o	*4.12.4	x	6.41	x
		4.45	x	*4.12.5	o	6.42	o
*2.1	o	4.46	o	*4.12.6	o	6.43	o
2.2	100	4.47	x			6.44	x
2.3	2K/500K	4.48	o	5.1	x	6.45	x,partly
2.4		4.49	x	5.2		6.46	o
2.41	o			5.21	x		
2.42	o	4.5		5.22	x	6.5	
2.43	x	4.51	10K-25K			6.51	o
2.44	o	4.52	10K-25K	5.3		6.52	x
2.5		4.53	2K-10K	*5.31	x	6.53	o
*2.51	o	*4.6		*5.32	x		
2.52	o	4.61	x	5.4		6.6	
		4.62	o	5.41	x	6.61	100/ 0
3.1		4.7		5.42	x	6.62	50/ 50
3.11	x	4.71	1-2	5.43	x	6.63	100/ 0
3.12	o	4.72	15	5.44	x	6.64	100/ 0
3.2		4.73	15	5.45	x	6.65	100/ 0
3.21	x,sparsely	4.74	5			6.66	100/ 0
3.22	o	4.8	10	5.5		6.67	100/ 0
3.23	o	4.9		5.51	o	6.68	10/ 90
3.24	x,partly	4.91	x	5.52	x	6.69	90/ 10
3.3		4.92	10-20	5.6		6.70	100/ 0
3.31	x,concrete	4.10		5.61	o	6.71	100/ 0
3.32	x	4.10.1	o	5.62	x	6.72	100/ 0
3.33	x	4.10.2	x	5.63	x	6.73	100/ 0
3.34	x	4.10.3	x	5.64	x	6.74	100/ 0
*3.4	x	4.10.4	x	5.65	x	6.75	100/ 0

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OCEANIA	**Australia**	Western Australia	J.G. Morgan	**AU**

1.1 4th order

2.1 There are cadastral and topographic maps on separate series and at multiple scales.

2.51 Individual sheets where required by demand.

3.4 Partly; marking of surveys under specific statutes is protected.

4.1 In progress

4.6 Local plane system for plans

4.121-4.126 No statute, but being established at government direction.

5.31 Diminishing

5.32 Torrens system

6.1 Only for licensed surveyors; boundary surveying

Continent	Country	State, District	Informant	NE
EUROPE	**Austria**		Mr.Hochwartner	**AT**

*1.1	1 - 5	*4.1	0,1	4.10.5	o	*6.1	x
*1.2		4.2		4.10.6	o		
1.21	x	4.21	x			6.2	
1.22	x	4.22	x	4.11		6.21	x
1.23	x	4.23	x	*4.11.1	x	*6.22	x
1.24	x	4.3		4.11.2	o	*6.23	x
1.25	x	4.31	o , formerly yes	4.11.3	x	*6.24	x
1.3		*4.32	x	4.11.4	o		
1.31	x	*4.33	x	4.11.5	o	6.3	
1.32	x	4.34	x	4.11.6	o	6.31	10
1.33	x	4.35	x , mostly			6.32	30
1.34	x	4.4		4.12		6.33	60
1.4		4.41	x	*4.12.1	x	6.34	0
*1.41	5	4.42	8	4.12.2	o		
*1.42	10	4.43	x	4.12.3	o	6.4	
*1.5	90	4.44	o	4.12.4	o	6.41	x
		4.45	x	4.12.5	o	6.42	x
*2.1	o	4.46	o	4.12.6	o	6.43	x
*2.2	0	4.47	x			6.44	x
2.3	5K	4.48	o	*5.1	x	6.45	x
2.4		4.49	o	*5.2		6.46	x
2.41	x			5.21	x		
2.42	x	*4.5		5.22	x	6.5	
2.43	x	4.51	2K - 5K			6.51	-
2.44	x	4.52	1K - 2K	*5.3		*6.52	x
2.5		4.53	1K	5.31	x	6.53	-
2.51	o	4.6		5.32	x		
2.52	x	4.61	x	*5.4		6.6	
		4.62	o	5.41	x	*6.61	100/ 0
3.1		*4.7		5.42	x	*6.62	100/ 0
*3.11	x	4.71	5 - 7	5.43	x	*6.63	100/ 0
3.12	x	4.72	14	5.44	x	6.64	100/ 0
3.2		4.73	14	*5.45	o	6.65	100/ 0
*3.21	x	4.74	14			6.66	100/ 0
3.22	x	*4.8	100	5.5		*6.67	10/ 90
3.23	x	4.9		5.51	o	*6.68	10/ 90
*3.24	x	*4.91	x	5.52	x	*6.69	10/ 90
*3.3		*4.92	1,5 - 3	5.6		*6.70	100/ 0
3.31	x	4.10		*5.61	x	*6.71	100/ 0
3.32	x	*4.10.1	x	5.62	x	*6.72	100/ 0
3.33	-	4.10.2	o	5.63	x	6.73	100/ 0
3.34	x	4.10.3	o	5.64	x	6.74	100/ 0
3.4	x	4.10.4	o	5.65	x	6.75	100/ 0

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Continent	Country	State, District	Informant	NE
EUROPE	**Austria**		Mr.Hochwartner	**AT**

1.1 5th order; in built-up areas density of points up to 5/km².

1.2 Underground marking by clinker plate and a metal bolt

1.41 In the 5th order network

1.42 Trigonometrical method of hight determination

1.5 1st to 3rd order: 100% ; 4th to 5th order: 80 - 100% according to land quality.

2.1 The base map 1:5'000 is in production.

2.2 Orthophoto map 1:10'000 is completed to 40%.

3.11 Only for new property boundaries

3.21 National territory boundary

3.24 On request

3.3 The marking must be durable.

4.1 8 - 10 control points/km² in the network of 5th order. Traverse points for attachment to the control network without marking.

4.32-4.33 Photogrammetry for mapping of land cover, vegetation and land use.

4.5 Map drawing at scales of 1:1'000, 1:2'000, 1:5'000 and on request at 1:500, 1:100, ...

4.7 These are the official tolerances.

4.8 2,1% thereof in CPB (see cipher 5.2).

4.91 In larger communities

4.92 For high accurate control points

4.10.1 Pilot project based on the actual law.

Continent	Country	State, District	Informant	NE
EUROPE	**Austria**		Mr.Hochwartner	**AT**

4.11.1 Common project of cadaster and public register of real estate Program: cadaster completed by 1985; public register by 1995

4.12.1 Pilot projects based on the actual law

5.1 Cadaster and public register

5.2 Register with legal purpose is being set up; (cadaster of property boundaries = CPB)

5.3 CPB serves for good-in-law evidence of property boundaries, record of land use, measure of areas and supplementary data for the identification of real estate

5.4 Public register of real estate

5.45 By exception

5.61 Registration constitutes the right

6.1 Governmental law of July 3, 1968 on national survey and cadaster of property boundaries; (land survey law)

6.22 A one year educational program for successful leavers of High School

6.23 Examination of state for land surveying service

6.24 Training of land survey staff members by authorized private land surveyors

6.52 Tasks of the national land survey administration: 1) Basic national geodetic networks. Scientific geodesy incl. gravimetry and geophysical national mapping. 2) Introduction of the cadaster of property boundaries (CPB). 3)Application of results of rural projects for CPB. 4) Administration of CPB. 5) All administrative and technical activities for CPB. 6) National topographic mapping. 7) Production of national maps. 8) Aerial photographs for the civil sector. 9) Surveying of national territory boundaries

6.61-6.63 For the network of control points

Continent	Country	State, District	Informant	NE
EUROPE	**Austria**		Mr.Hochwartner	**AT**

6.67-6.69 Incl. cadastral surveying

6.70-6.72 Exclusive cadastral surveying (see above)

Continent	Country	State, District	Informant	NE
EUROPE	**Belgium**		G.Renier	**BE**

1.1	0,5 - 0,5	4.1	- , variable	4.10.5	o	6.1	o
1.2		4.2		4.10.6	o		
1.21	x	4.21	x			6.2	
1.22	x	4.22	x	4.11		6.21	o
1.23	x	4.23	x	4.11.1	o	6.22	x
1.24	-	4.3		4.11.2	o	6.23	x
1.25	-	4.31	o	4.11.3	o	6.24	x
1.3		4.32	x	4.11.4	o		
1.31	x	4.33	o	4.11.5	x , in one	6.3	
1.32	x	4.34	o	4.11.6	o	6.31	3
1.33	o	4.35	x			6.32	3
1.34	x	4.4		4.12		6.33	4
*1.4		4.41	x	4.12.1	x	6.34	90
*1.41	15	4.42	-	4.12.2	o		
1.42	0,15 / km	4.43	x	4.12.3	o	6.4	
*1.5	100	4.44	o	4.12.4	o	6.41	x
		4.45	o	4.12.5	o	6.42	x
2.1	x , 1:25K	4.46	o	4.12.6	o	6.43	x
*2.2	100	4.47	o			6.44	x
2.3	25K	4.48	o	5.1	x	6.45	x
2.4		4.49	o	5.2		6.46	x
2.41	x			5.21	x		
2.42	x	4.5		5.22	o	6.5	
2.43	o	4.51	2,5K			6.51	x
2.44	x	4.52	2,5K	5.3		6.52	o
*2.5		4.53	1 K	5.31	x	6.53	o
2.51	o	4.6		5.32	o		
2.52	o	4.61	x	5.4		6.6	
		4.62	o	*5.41	x	6.61	100/ 0
3.1		4.7		*5.42	x	6.62	100/ 0
3.11	o	*4.71	15	*5.43	x	6.63	100/ 0
3.12	x	*4.72	15	*5.44	x	6.64	100/ 0
3.2		*4.73	15	*5.45	x	6.65	100/ 0
3.21	x , compulsory	*4.74	15			6.66	100/ 0
3.22	o , optional	*4.8	100	5.5		6.67	0/100
3.23	o , optional	4.9		5.51	o	6.68	0/100
3.24	o , optional	4.91	x	5.52	x	6.69	0/100
3.3		4.92	20	*5.6		*6.70	100/ 0
3.31	x	4.10		5.61	-	*6.71	100/ 0
3.32	o	4.10.1	o	5.62	-	*6.72	100/ 0
3.33	o	4.10.2	o	5.63	x	6.73	100/ 0
3.34	o	4.10.3	o	5.64	o	6.74	100/ 0
3.4	x , in theory	4.10.4	o	5.65	o	6.75	100/ 0

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Continent	Country	State, District	Informant	NE
EUROPE	**Belgium**		G.Renier	**BE**

1.1 Densification on request by inertial methods.

1.4 National and European network

1.41 ≃ 28'000 points marked within the national territory.

1.5 With continuous updating

2.2 Cycle of revision: every 5 to 10 years.

2.5 On request only

4.71-4.74 At the best

4.8 With continuous updating

5.41 In cadastral maps

5.42-5.45 Yes, when mortgages are registered.

5.6 For protection against third persons the conventions must be inscribed into the title of mortgage after payment of the registration fees. The registration guarantees the date of the convention.

6.70-6.72 The government can encourage competition of private organisations.

Continent	Country	State, District	Informant	NE
N.AMERICA	**Canada**	Alberta	C.W.Youngs	**CA**

*1.1	2 - 0,005	*4.1	-	4.10.5	x	*6.1	x
*1.2		4.2		4.10.6	o		
1.21	-	*4.21	x			6.2	
1.22	-	*4.22	x	4.11		6.21	x
1.23	-	*4.23	x	4.11.1	x	6.22	x
1.24	x , very rarely	4.3		4.11.2	o	6.23	x
1.25	x , very rarely	4.31	o	4.11.3	x	6.24	o
1.3		4.32	o	4.11.4	x		
1.31	o	4.33	o	4.11.5	x	*6.3	
1.32	x	4.34	x	4.11.6	x	6.31	20
1.33	x	4.35	x			6.32	70
1.34	x	*4.4		4.12		6.33	10
1.4		4.41	o	4.12.1	x	6.34	-
1.41	2 , rural 35	4.42	0	4.12.2	o		
1.42	2 , rural 35	4.43	o	4.12.3	o	6.4	
1.5	65	4.44	o	4.12.4	x	6.41	x
		4.45	x	4.12.5	x	6.42	x
*2.1	o	4.46	-	4.12.6	o	6.43	o
*2.2	-	4.47	x			6.44	x
*2.3	-	4.48	-	5.1	x	6.45	x
2.4		4.49	x	5.2		6.46	x
2.41	x			5.21	o		
2.42	x , partly	*4.5		5.22	x	6.5	
2.43	x , partly	4.51	-			6.51	o
2.44	x	*4.52	20K	5.3		6.52	x
*2.5		*4.53	1 K	5.31	o	6.53	x , mostly
2.51	o	4.6		5.32	x		
2.52	o	4.61	x	5.4		6.6	
		4.62	-	5.41	x	6.61	100/ 0
3.1		*4.7		5.42	x	6.62	10/ 90
3.11	x	4.71	-	5.43	x	6.63	100/ 0
3.12	o	4.72	-	5.44	x	6.64	100/ 0
3.2		4.73	-	5.45	o	6.65	20/ 80
3.21	x	4.74	-			6.66	80/ 20
*3.22	x	4.8	40	5.5		6.67	100/ 0
3.23	o	4.9		5.51	o	6.68	10/ 90
3.24	x	4.91	o	5.52	x	6.69	10/ 90
3.3		4.92	-	5.6		6.70	100/ 0
3.31	o	4.10		5.61	x	6.71	10/ 90
3.32	x	4.10.1	o	5.62	x	6.72	10/ 90
3.33	o	4.10.2	o	5.63	x	6.73	100/ 0
3.34	x	4.10.3	o	*5.64	x	6.74	100/ 0
3.4	x	4.10.4	x	5.65	x	6.75	100/ 0

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Continent	Country	State, District	Informant	NE
N.AMERICA	**Canada**	Alberta	C.W.Youngs	**CA**

1.1 Rural: 10 km to 20 km ; urban: 300 m to 800 m

1.2 Virtually all of our markers consist of double-strength iron pipe 245 cm long, 5 cm inside diameter. A 20 cm diameter helix is welded to its base and the marker is power driven into the ground by up to 3'500 ft. lb. torque and 2'000 lb. downward pressure. Once set, a numbered brass tablet with stem is cemented to the top of the pipe.
Examples as in the questionnaire are used only on rare occasions by our organization.

2.1 At scales of 1:250'000 and 1:50'000

2.2 100 % at 1:250'000 ; 70 % at 1:50'000

2.3 1:250'000, 1:50'000

2.5 Orthophoto imagery is available at 1:5'000 in some urban areas.

3.22 Provincial boundaries

4.1 Deflection points on parcel boundaries are monumented and are now being connected to the geodetic points.

4.21-4.23 Hand drawn plans by Land Surveyors are assigned a registered number in the Land Titles Offices. Compiled plans are presently being prepared from this information, using a computer assisted digital process.

4.4 Object of survey is to deliniate boundaries, by monumented points, and by reference to registered plan numbers. This reference is used in Land Titles Office to describe ownership rights.

4.5 Original survey plans are 1:31'680. New plans for registration are normally 1:5'000 or 1:2'000.

4.52 Compiled plans now being prepared are 1:20'000 (rural).

4.53 Compiled plans now being prepared are 1: 1'000 (urban).

Continent	Country	State, District	Informant	NE
N.AMERICA	**Canada**	Alberta	C.W.Youngs	**CA**

4.7 Closing errors on Land Surveying Traverses should not exceed 1 part in 7'500.

5.64 Government; land titles office

6.1 Land Surveying only

6.3 Entrance standards are now based on University graduation plus two years of practical experience.

Continent	Country	State, District	Informant	NE
N.AMERICA	**Canada**	Newfoundland	N.MacNaughton	**CA**

1.1	0,25 - 10	4.1	1	4.10.5	o	6.1	x
1.2		4.2		4.10.6	o		
1.21	x	*4.21	o			6.2	
1.22	-	*4.22	o	4.11		6.21	o
1.23	x	*4.23	o	4.11.1	o	6.22	x
1.24	o	4.3		4.11.2	o	6.23	o
1.25	o	4.31	o	4.11.3	o	6.24	o
1.3		4.32	o	4.11.4	o		
1.31	-	4.33	x	4.11.5	o	6.3	approx.
1.32	-	4.34	o	4.11.6	o	6.31	5
1.33	x	4.35	o			6.32	35
1.34	x	4.4		4.12		6.33	35
1.4		4.41	o	4.12.1	o	6.34	25
1.41	1 - 3	4.42	2	4.12.2	o		
1.42	1 - 5	4.43	o	4.12.3	o	6.4	
1.5	10	4.44	o	4.12.4	o	6.41	x
		4.45	x	4.12.5	o	6.42	o
2.1	o	4.46	x	4.12.6	o	6.43	o
2.2	-	4.47	o			6.44	x
*2.3	12,5 / 5 / 2,5K	4.48	o	5.1	x	6.45	o
2.4		4.49	x	5.2		6.46	o
2.41	x			5.21	o		
2.42	x	4.5		5.22	x	6.5	
2.43	o	4.51	5K - 12,5K			6.51	o
2.44	x	4.52	5K - 2,5K	5.3		6.52	x
2.5		4.53	1K - 0,5K	5.31	x	6.53	o
2.51	x	4.6		5.32	o		
2.52	o	*4.61	x	5.4		6.6	
		4.62	-	5.41	x	6.61	100/ 0
3.1		4.7		5.42	x	6.62	10/ 90
3.11	x	4.71	1 - 3	5.43	x	6.63	10/ 90
3.12	o	4.72	30	5.44	x	6.64	100/ 0
3.2		4.73	10	5.45	o	6.65	20/ 80
3.21	o	4.74	3			6.66	20/ 80
3.22	o	4.8	20	5.5		6.67	30/ 70
3.23	o	4.9		5.51	-	6.68	10/ 90
3.24	o	4.91	o	5.52	o	6.69	10/ 90
3.3		4.92	-	5.6		6.70	100/ 0
3.31	o	4.10		5.61	o	6.71	100/ 0
3.32	x	4.10.1	o	5.62	o	6.72	100/ 0
3.33	o	4.10.2	o	5.63	o	6.73	-/-
3.34	o	4.10.3	o	5.64	o	6.74	-/-
3.4	x	4.10.4	o	5.65	o	6.75	-/-

Control networks, large scale mapping, legal survey, cadastre, land property registration, land information systems in 37 countries and states around the world	Prof. Dr. H.J. Matthias Federal Institute of Technology Dept. of Geodesy and Photogrammetry CH - 8093 Zurich

Continent	Country	State, District	Informant	NE
N.AMERICA	**Canada**	Newfoundland	N.MacNaughton	**CA**

2.3 Present mapping scales are:
resource 1:12'500 ; community 1:5'000 and 1:2'500

4.21-4.23 No cadaster - except for partial attempts to produce a cadaster of crown titles.

4.61 3° transverse Mercator

Continent	Country	State, District	Informant	NE
N.AMERICA	**Canada**	Quebec	Dir.desReleves	**CA**

*1.1	0,002 - 2	*4.1	-	4.10.5	-	6.1	o
*1.2		4.2		4.10.6	-		
1.21	o	*4.21	x			6.2	
1.22	o	4.22	-	4.11	pilot project	6.21	x
1.23	x	4.23	-	4.11.1	-	6.22	-
1.24	x	4.3		4.11.2	-	6.23	-
1.25	x	4.31	-	4.11.3	-	6.24	-
1.3		4.32	-	4.11.4	-		
1.31	o	4.33	-	4.11.5	-	6.3	
1.32	o	4.34	-	4.11.6	-	6.31	-
1.33	o	*4.35	x			6.32	-
1.34	x	4.4		4.12	pilot project	6.33	-
1.4		4.41	-	4.12.1	-	6.34	-
1.41	3	4.42	-	4.12.2	-		
1.42	0,5	4.43	-	4.12.3	-	6.4	
1.5	80	4.44	x	4.12.4	-	6.41	o
		4.45	x	4.12.5	-	6.42	-
2.1	x	4.46	-	4.12.6	-	6.43	-
2.2	30	4.47	x			6.44	-
2.3	20K	4.48	-	5.1	x	6.45	-
2.4		4.49	-	5.2		6.46	-
2.41	x			*5.21	x		
2.42	x	4.5		5.22	-	6.5	
2.43	x	4.51	20K			6.51	-
2.44	x	4.52	20K - 1K	5.3		6.52	x
2.5		4.53	20K - 1K	*5.31	x	6.53	-
2.51	o	4.6		5.32	-		
2.52	o	*4.61	x	*5.4		6.6	
		4.62	-	5.41	x	6.61	10/ 90
3.1		4.7		5.42	x	6.62	10/ 90
*3.11	x , generally	4.71	-	5.43	x	6.63	100/ 0
3.12	-	4.72	50	5.44	x	6.64	100/ 0
3.2		4.73	20	5.45	-	6.65	-/-
3.21	x	4.74	5			6.66	100/ 0
3.22	x	4.8	50	5.5		6.67	100/ 0
3.23	-	4.9		*5.51	x	6.68	100/ 0
3.24	-	4.91	-	5.52	-	6.69	100/ 0
3.3		4.92	-	*5.6		6.70	-/-
3.31	x	4.10	pilot project	5.61	-	6.71	-/-
3.32	x	4.10.1	-	5.62	-	6.72	-/-
3.33	-	4.10.2	-	*5.63	x	6.73	-/-
3.34	x	4.10.3	x	*5.64	o	6.74	-/-
3.4	x	4.10.4	-	*5.65	-	6.75	-/-

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Continent	Country	State, District	Informant	NE
N.AMERICA	**Canada**	Quebec	Dir.desReleves	**CA**

1.1 Urban: 2 points/km²; semi-urban/rural: 1 point/4 km²; rural: 1 point/50 km²

1.2 Metal mark on tube anchoring in an underground concrete block. Protected by an iron cover. Or: Metal mark on steel bar in ground, with iron cover.

3.11 As a rule; generally. Depending on project being carried out.

4.1 According to existing control networks.

4.21 Original documents: Graphical map complemented by a register of real estate with (verbal) description of lot, field measurements, surface and other. The subdivision map contains all geometrical information.

4.35 There are cadastral maps identifying all registered lots at scales from 1:1'000 to 1:20'000.

4.61 Conformal projection for cadastral maps only.

4.10.1 Under consideration

4.10.2 Under consideration

4.10.3 Under consideration

5.21 Identification of lots primarily for the purpose of registration; secondarily for property taxation.

5.31 The system is characterized by registration of notarial documents of privately constituted rights.

5.4 Furthermore, public registration includes even the registration of certain documents on personal rights relating to immovables in real estate.

5.51 Due to the many disadvantages of default registration, in practice registration is considered a compelling need.

5.6 Non-registered rights in real estate do exist but they cannot be enforced against individuals whose rights are regularly registered.

Continent	Country	State, District	Informant	NE
N.AMERICA	**Canada**	Quebec	Dir.desReleves	**CA**

Registration certifies the deposition of documents only; it does not prove the validity of the rights in them.

5.63 To the same extend as she/he can verify the validity of the registered documents rights.

5.64 Responsibility lies - depending on the nature of the fault - with the administrator of the register (registrar) or with the person that requested registration.

5.65 The register is based on cadastral identification.

Continent	Country	State, District	Informant	NE
ASIA	**China,P.R.**	Beijing	Soc.ofGeodesy.	**CN**

1.1	0,02 - 0,2	4.1	no answer	4.10.5	no answer	6.1	no answer
1.2		4.2		4.10.6			
1.21	x	4.21				6.2	
1.22	x	4.22		4.11		6.21	
1.23	x	4.23		4.11.1		6.22	
1.24	x	4.3		4.11.2		6.23	
1.25	x	4.31		4.11.3		6.24	
1.3		4.32		4.11.4			
1.31	x	4.33		4.11.5		6.3	
1.32	x	4.34		4.11.6		6.31	
1.33	x	4.35				6.32	
1.34	x	4.4		4.12		6.33	
1.4		4.41		4.12.1		6.34	
1.41	25	4.42		4.12.2			
1.42	10	4.43		4.12.3		6.4	
1.5	-	4.44		4.12.4		6.41	
		4.45		4.12.5		6.42	
2.1	x	4.46		4.12.6		6.43	
2.2	30	4.47				6.44	
2.3	18,8K	4.48		5.1		6.45	
2.4		4.49		5.2		6.46	
2.41	x			5.21			
2.42	x	4.5		5.22		6.5	
2.43	o	4.51				6.51	
2.44	x	4.52		5.3		6.52	
2.5		4.53		5.31		6.53	
2.51	o	4.6		5.32			
2.52	x	4.61		5.4		6.6	
		4.62		5.41		6.61	
3.1		4.7		5.42		6.62	
3.11	x	4.71		5.43		6.63	
3.12	o	4.72		5.44		6.64	
3.2		4.73		5.45		6.65	
3.21	x	4.74				6.66	
3.22	x	4.8		5.5		6.67	
3.23	o	4.9		5.51		6.68	
3.24	o	4.91		5.52		6.69	
3.3		4.92		5.6		6.70	
3.31	x	4.10		5.61		6.71	
3.32	x	4.10.1		5.62		6.72	
3.33	o	4.10.2		5.63		6.73	
3.34	x	4.10.3		5.64		6.74	
3.4	x	4.10.4		5.65		6.75	

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Continent	Country	State, District	Informant	NE
EUROPE	**Cyprus**		Th.Hajigeorgiou	**CY**

1.1	1 - 15	4.1	0 - 1	4.10.5	o	6.1	o
1.2		4.2		4.10.6	o		
1.21	x	4.21	x			6.2	
1.22	x	4.22	x	4.11		6.21	o
1.23	x	4.23	x	4.11.1	o	6.22	o
1.24	x	4.3		4.11.2	o	6.23	o
1.25	x	4.31	x	4.11.3	o	6.24	o
1.3		4.32	x	4.11.4	o		
1.31	x	4.33	o	4.11.5	o	6.3	
1.32	o	*4.34	x	4.11.6	o	6.31	o
1.33	o	*4.35	x			6.32	o
1.34	x	4.4		4.12		6.33	o
1.4		4.41	x	4.12.1	o	6.34	o
1.41	10	4.42	0	4.12.2	o		
1.42	100	4.43	x	4.12.3	o	6.4	
1.5	100	4.44	x	4.12.4	o	6.41	o
		4.45	x	4.12.5	o	6.42	o
2.1	x	4.46	x	4.12.6	o	6.43	o
2.2	100	4.47	o			6.44	o
2.3	31,68K	4.48	x	5.1	x	6.45	o
2.4		4.49	o	5.2		6.46	o
2.41	x			5.21	x		
2.42	x	4.5		5.22	x	6.5	
2.43	x	4.51	5 K - 10 K			6.51	x
2.44	x	4.52	2,5K - 5 K	5.3		6.52	o
2.5		4.53	0,5K - 1,25K	5.31	o	6.53	o
2.51	x	4.6		5.32	x		
2.52	o	4.61	x	5.4		6.6	
		4.62	o	5.41	x	6.61	100/ 0
3.1		4.7		5.42	x	6.62	100/ 0
3.11	x	4.71	5 - 10	5.43	x	6.63	100/ 0
3.12	o	4.72	300	5.44	x	6.64	100/ 0
3.2		4.73	150	5.45	x	6.65	100/ 0
3.21	o	4.74	10			6.66	100/ 0
3.22	o	4.8	100	5.5		6.67	100/ 0
3.23	x	4.9		5.51	o	6.68	100/ 0
3.24	x	4.91	x	5.52	x	6.69	100/ 0
3.3		4.92	1 - 3	5.6		6.70	100/ 0
3.31	x	4.10		5.61	x	6.71	100/ 0
3.32	x	4.10.1	o	5.62	x	6.72	100/ 0
3.33	o	4.10.2	o	5.63	x	6.73	100/ 0
3.34	x	4.10.3	o	5.64	x	6.74	100/ 0
3.4	x	4.10.4	o	5.65	x	6.75	100/ 0

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Continent	Country	State, District	Informant	NE
EUROPE	**Cyprus**		Th.Hajigeorgiou	**CY**

4.34 And also chain survey

4.35 And also chain survey

Continent	Country	State, District	Informant	NE
EUROPE	**Czechoslov.**		M.Klimes	CS

*1.1	1,5	*4.1	0,2	4.10.5	-	6.1	x
1.2		4.2		4.10.6	-		
1.21	x	4.21	o			6.2	
*1.22	x	4.22	x	4.11		6.21	x
1.23	x , rarely	4.23	x	4.11.1	o	6.22	x
1.24	x	4.3		4.11.2	x	6.23	o
1.25	x	4.31	o	4.11.3	x	6.24	x
1.3		4.32	o	4.11.4	-		
1.31	x	4.33	x	4.11.5	-	*6.3	
1.32	o	4.34	x	4.11.6	-	6.31	-
1.33	o	4.35	x			6.32	-
1.34	o	4.4		4.12		6.33	-
1.4		4.41	o	4.12.1	x	6.34	-
1.41	1,5	4.42	12	4.12.2	o		
1.42	10	4.43	x	4.12.3	x	6.4	
1.5	100	4.44	o	4.12.4	-	6.41	-
		4.45	x	4.12.5	-	6.42	x
2.1	x	4.46	x	4.12.6	-	6.43	x
2.2	100	4.47	-			6.44	o
2.3	10K	4.48	-	5.1	x	6.45	x
2.4		4.49	x	5.2		6.46	x
2.41	x			5.21	o		
2.42	x	*4.5		5.22	x	6.5	
2.43	o	4.51	5K			6.51	x
2.44	x	4.52	2K	5.3		6.52	o
2.5		4.53	1K	5.31	x , since 1964	6.53	o
2.51	o	4.6		5.32	x , until 1964		
2.52	o	4.61	x	5.4		6.6	
		4.62	o	5.41	x	6.61	100/ 0
3.1		4.7		5.42	x	6.62	100/ 0
3.11	x	4.71	2 - 20	5.43	x	6.63	100/ 0
3.12	-	4.72	50	5.44	x	6.64	100/ 0
3.2		4.73	26	5.45	x	6.65	100/ 0
3.21	x	4.74	14			6.66	100/ 0
3.22	x	4.8	100	5.5		6.67	100/ 0
3.23	x	4.9		5.51	o	6.68	100/ 0
3.24	x	4.91	x	5.52	x	6.69	100/ 0
3.3		4.92	3 - 7	5.6		6.70	100/ 0
3.31	x	4.10		5.61	o	6.71	100/ 0
3.32	x	4.10.1	x	5.62	x	6.72	100/ 0
3.33	o	4.10.2	o	5.63	x	6.73	100/ 0
3.34	x	4.10.3	x	5.64	-	6.74	100/ 0
3.4	x	4.10.4	-	5.65	x	6.75	100/ 0

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EUROPE	**Czechoslov.**		M.Klimes	CS

1.1 5th order triangulation, average distance 1.5 km.

1.22 All triangulation points have two separate underground marks.

4.1 In urban areas the distance between the points is 150 - 300 m, in other areas 500 - 1000 m.

4.5 The old graphic maps are at a scale of 1:2'880.

6.3 The percentage of personnel structure varies from office to office.

Continent	Country	State, District	Informant	NE
EUROPE	**Denmark**		Landbrugsminist	**DK**

1.1	1 - 2	4.1	0 - 1	4.10.5	o	6.1	x , partly
*1.2		*4.2		4.10.6	o		
1.21	x	4.21	x			6.2	
1.22	x	4.22	x	4.11		6.21	x
1.23	x	4.23	x	4.11.1	x , pilot project	6.22	x
1.24	x	4.3		4.11.2	o	6.23	x
1.25	x	4.31	o , formerly	4.11.3	o	6.24	o
1.3		4.32	o	4.11.4	x , pilot project		
1.31	x	4.33	x	4.11.5	o	6.3	
1.32	x	4.34	x	4.11.6	o	6.31	66
1.33	x	4.35	x			6.32	1
1.34	x	4.4		4.12		6.33	33
1.4		4.41	o	4.12.1	x , pilot project	6.34	0
*1.41	3	4.42	o	4.12.2	o		
1.42	1	4.43	x	4.12.3	o	6.4	
1.5	100	4.44	o	4.12.4	x , pilot project	6.41	o
		*4.45	x	4.12.5	o	6.42	x
*2.1	x	*4.46	o	4.12.6	o	6.43	o
2.2	1	*4.47	x			6.44	x
2.3	4K	*4.48	o	*5.1	x	6.45	x , partly
2.4		*4.49	x	5.2		6.46	x
2.41	x			5.21	x		
2.42	x	4.5		5.22	x	6.5	
2.43	x	4.51	4K - 4 K			6.51	o
2.44	x	4.52	4K - 4 K	5.3		*6.52	x
2.5		4.53	4K - 0,8K	5.31	o	6.53	x
2.51	o	4.6		5.32	x		
2.52	x	*4.61	x	5.4		6.6	
		4.62	o	5.41	x	6.61	100/ 0
3.1		4.7		5.42	x	6.62	100/ 0
*3.11	x	4.71	2 - unknown	5.43	x	6.63	100/ 0
3.12	x , others	4.72	5 - 100	5.44	x	6.64	100/ 0
3.2		4.73	5 - 100	5.45	x , partly	6.65	90/ 10
3.21	x	4.74	5			6.66	50/ 50
3.22	o	4.8	100	5.5		6.67	100/ 0
3.23	o	4.9		5.51	x , partly	6.68	10/ 90
3.24	x , partly	4.91	x	5.52	x , partly	6.69	10/ 90
3.3		4.92	2 - 10	5.6		6.70	80/ 20
*3.31	o	4.10		5.61	o , partly	6.71	20/ 80
3.32	o	4.10.1	o	5.62	o , partly	6.72	20/ 80
3.33	x	4.10.2	o	5.63	x	6.73	100/ 0
3.34	x , mostly	4.10.3	o	5.64	x	6.74	100/ 0
3.4	x	4.10.4	o	5.65	x	6.75	100/ 0

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Continent	Country	State, District	Informant	NE
EUROPE	**Denmark**		Landbrugsminist	**DK**

1.2 Two concrete blocks one above the other 15x15x40 cm/15x15x80 cm

1.41 Before revision 5-10 cm; after revision 3 cm. At present half of the revision is done and it is scheduled to be completed by 1989.

2.1 Pilot project; production of orthophotomaps of the Island of Bornholm.

3.11 New boundaries and boundaries around sites etc.

3.31 Reinforced concrete piles are used.

4.2 All kinds existing.

4.45-4.49 Are covered by the registers no. 1 and 2. Mentioned in 5.1

4.61 System 34: almost conformal three projection cylindres in order to minimize the scale deviation. Skewness from transversal about 1 degree.

5.1 The public register includes three separate parts: 1) cadastral register, 2) land register, 3) "Municipal register of real property" comprising a valuation register and a building and dwelling register.

6.52 Only by the government in the southern part of Jutland.

Continent	Country	State, District	Informant	NE
EUROPE	**Finland**		Dr.S.Härmälä	**FI**

*1.1	0,05 - 0,1	*4.1	0 - 1	4.10.5	o	*6.1	x
1.2		4.2		4.10.6	o		
1.21	o	4.21	x			6.2	
1.22	o	4.22	o	4.11		6.21	x
1.23	x	4.23	o	4.11.1	x	6.22	x
1.24	x	4.3		4.11.2	o	6.23	x
1.25	x	4.31	o	4.11.3	x	6.24	o
1.3		4.32	o	4.11.4	x		
1.31	o	4.33	x	4.11.5	o	6.3	
1.32	o	4.34	x , mainly	4.11.6	x	6.31	18
1.33	x	4.35	x			6.32	16
*1.34	o	4.4		4.12		6.33	66
1.4		4.41	o	4.12.1	x	6.34	-
1.41	2 - 4	*4.42	3	4.12.2	o		
1.42	10	4.43	x	4.12.3	o	*6.4	
1.5	70	4.44	o	4.12.4	o	6.41	o
		4.45	x	4.12.5	o	6.42	o
*2.1	o	4.46	o	4.12.6	o	6.43	o
2.2	100	4.47	o			6.44	o
*2.3	10K / 20K	4.48	o	5.1	x	6.45	o
2.4		4.49	x	5.2		6.46	o
2.41	x			5.21	o		
2.42	x	4.5		5.22	x	6.5	
2.43	x	4.51	20K - 5 K			*6.51	x
2.44	x	4.52	5 K - 2 K	5.3		6.52	o
*2.5		4.53	2 K - 0,5K	5.31	o	6.53	-
2.51	x	4.6		5.32	x		
2.52	-	4.61	x	5.4		6.6	
		4.62	o	*5.41	x	6.61	100/ 0
3.1		*4.7		5.42	x	6.62	100/ 0
3.11	x	4.71	-	*5.43	o	6.63	100/ 0
3.12	o	*4.72	-	5.44	o	6.64	100/ 0
3.2		*4.73	-	5.45	x	6.65	100/ 0
3.21	x	*4.74	-			6.66	100/ 0
3.22	x	4.8	65	5.5		6.67	100/ 0
3.23	x	4.9		5.51	o	6.68	100/ 0
3.24	x , partly	4.91	x	5.52	x	6.69	100/ 0
3.3		*4.92	-	5.6		6.70	100/ 0
3.31	x	4.10		5.61	o	6.71	100/ 0
3.32	x	4.10.1	o	5.62	x	6.72	100/ 0
3.33	x	4.10.2	o	5.63	o	6.73	100/ 0
3.34	x	4.10.3	o	5.64	o , nobody	6.74	100/ 0
3.4	x	4.10.4	o	5.65	x	6.75	100/ 0

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Continent	Country	State, District	Informant	NE
EUROPE	**Finland**		Dr.S.Härmälä	**FI**

1.1 3rd order triangulation net

1.34 Travers networks in urban areas. They are limited by communities.

2.1 Finland topographic map 1:10'000 / 1:20'000

2.3 1:10'000 ca. 11'200 sheets
1:20'000 ca. 900 sheets in Northern Finland

2.5 Cadastral photomap 1:5'000 in process; in development

4.1 In urban areas 0,1 - 1, in rural areas they exist occasionally

4.42 Field, garden, pasture

4.7 Maximum error depending on order of measurement
3rd order $3\sqrt{s}$ [cm] 5th order $10\sqrt{s}$ [cm]
4th " $5\sqrt{s}$ [cm] 6th " $20\sqrt{s}$ [cm]
s = distance between points in km

4.72 $1,5 + 5,0\sqrt{s}$ [m]

4.73 $0,4 + 0,6\sqrt{s}$ [m] } s = distance between boundary points in km

4.74 $0,25 + 0,3\sqrt{s}$ [m]

4.92 $10\sqrt{s}$ [mm] s = distance between bench marks

5.41 Owner at the moment of real estate formation is registered in real estate register. Next owners are registered by court of law.

5.43 Registered by court of law

6.1 In urban areas only

6.4 In Finland land surveyors are governmental or communal officials.

6.51 Main part done by government, minor part by communities

Continent	Country	State, District	Informant	NE
EUROPE	**France**		A.Bourcy	**FR**

*1.1	1 - 2	4.1	5 - 10	4.10.5	-	*6.1	o
1.2		4.2		4.10.6	-		
*1.21	x	4.21	x			6.2	
1.22	x	4.22	-	4.11		6.21	x
1.23	x	*4.23	x , partly	4.11.1	x	6.22	x
1.24	x	4.3		4.11.2	-	6.23	-
1.25	x	4.31	-	4.11.3	-	6.24	x
1.3		4.32	-	4.11.4	-		
1.31	-	4.33	x	4.11.5	-	6.3	
1.32	-	4.34	x	4.11.6	-	6.31	40
1.33	x	4.35	x			6.32	40
*1.34	x	4.4		4.12		6.33	-
1.4		4.41	x	4.12.1	x	6.34	20
1.41	5	4.42	x	4.12.2	-		
1.42	1	4.43	x	4.12.3	-	6.4	
1.5	100	4.44	x	4.12.4	-	6.41	x
		4.45	-	4.12.5	-	6.42	x
*2.1	x	4.46	-	4.12.6	-	6.43	x
2.2	20	4.47	-			6.44	x
2.3	2,5K	4.48	-	5.1	x	6.45	x
2.4		4.49	-	5.2		6.46	x
2.41	x			5.21	x		
2.42	x	4.5		5.22	-	6.5	
2.43	x	4.51	2 K			6.51	-
2.44	x	4.52	2 K	5.3		6.52	x
2.5		4.53	0.5K - 1K	5.31	-	6.53	x
2.51	o	4.6		5.32	x		
2.52	o	4.61	x	5.4		6.6	
		4.62	-	5.41	x	6.61	100/ 0
3.1		4.7		5.42	-	6.62	10/ 90
*3.11	x , partly	4.71	3 - 5	5.43	x	6.63	50/ 50
*3.12	x , partly	4.72	5	5.44	-	6.64	100/ 0
3.2		4.73	5	5.45	-	6.65	20/ 80
3.21	x	4.74	3			6.66	20/ 80
3.22	x	4.8	50	5.5		6.67	100/ 0
3.23	x	4.9		5.51	-	6.68	0/100
3.24	o	4.91	x	5.52	x	6.69	0/100
3.3		4.92	1 - 2	5.6		6.70	100/ 0
3.31	x	*4.10		5.61	-	6.71	20/ 80
3.32	x	4.10.1	-	5.62	x	6.72	20/ 80
3.33	-	4.10.2	-	*5.63	-	*6.73	100/ 0
3.34	-	4.10.3	-	5.64	-	*6.74	0/100
3.4	x	4.10.4	-	5.65	x	*6.75	100/ 0

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Continent	Country	State, District	Informant	NE
EUROPE	**France**		A.Bourcy	**FR**

1. Subdivided in territory of communities/villages

1.21 Reinforced concrete

1.34 High-accurate traverses when triangulation is impossible

2.1 1:5'000; not yet completed, works are in process

3.11 Districts of Alsace and Lorraine

3.12 For the remaining parts of the national territory

4.23 In the district of Alsace

4.10 Attempts, realisation beginning

5.63 By decision of law-court only

6.1 Only ministerial directives only, no laws

6.73-6.75 Exclusively for the districts of Alsace and Lorraine

Continent	Country	State, District	Informant	NE
EUROPE	**WestGermany**	Baden-Württemb.	Mr.Ewig	**DE**

1.1	1 - 3	4.1	1 - 4	4.10.5	x	6.1	x
*1.2		4.2		4.10.6	x		
1.21	x	4.21	o			6.2	
1.22	x	4.22	o	4.11		6.21	x
1.23	x	4.23	x	*4.11.1	o	6.22	x
1.24	x	4.3		4.11.2	o	6.23	-
1.25	x	4.31	o	4.11.3	o	6.24	x
1.3		4.32	o	4.11.4	o		
1.31	x	*4.33	x	4.11.5	o	6.3	
1.32	x	4.34	x	4.11.6	o	6.31	-
1.33	x	4.35	x			6.32	-
1.34	x	4.4		4.12		6.33	-
1.4		4.41	x	4.12.1	o	6.34	-
1.41	1,5	4.42	50	4.12.2	o		
1.42	5	4.43	x	4.12.3	o	6.4	
1.5	85	4.44	o	4.12.4	o	6.41	-
		4.45	o	4.12.5	o	6.42	-
2.1	x	4.46	o	4.12.6	o	6.43	-
*2.2	80	4.47	o			6.44	-
*2.3	5K / 2,5K	4.48	o	*5.1	x	6.45	-
2.4		4.49	o	5.2		6.46	-
2.41	x			5.21	x		
2.42	x	4.5		5.22	x	6.5	
2.43	x	4.51	1 K - 2,5K			6.51	-
2.44	x	4.52	1 K - 2,5K	5.3		6.52	x
2.5		4.53	0,5K - 2,5K	5.31	o	6.53	-
2.51	o	*4.6		5.32	x , G		
2.52	o	4.61	x	5.4	G	6.6	
		4.62	-	5.41	x	6.61	100/ 0
3.1		4.7		5.42	x	6.62	-/-
3.11	x	4.71	2 - 3	5.43	x	6.63	-/-
3.12	-	4.72	4	5.44	x	6.64	100/ 0
3.2		4.73	4	5.45	-	6.65	-/-
*3.21	x	4.74	3			6.66	-/-
*3.22	x	4.8	100	5.5		6.67	100/ 0
*3.23	x	4.9		*5.51	o , G	6.68	-/-
3.24	o	*4.91	x	5.52	x	6.69	-/-
3.3		4.92	1 - 2	5.6		6.70	100/ 0
3.31	x	4.10		*5.61	x , G	6.71	-/-
3.32	x	4.10.1	x , 70%	5.62	x	6.72	-/-
3.33	x	4.10.2	x , 70%	*5.63	x , G	6.73	100/ 0
3.34	o	*4.10.3	x	*5.64	x , G	6.74	100/ 0
3.4	x	4.10.4	o	5.65	x	6.75	100/ 0

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Continent	Country	State, District	Informant	NE
EUROPE	**WestGermany**	Baden-Württemb.	Mr.Ewig	**DE**

1.2 Tube with protective cover. Metal marks in walls.

2.2 Baden: 57 % ; Württemberg: 100 %

2.3 Baden: 1:5'000 ; Württemberg: 1:2'500

3.21-3.23 Always identical with property boundaries

4.33 Sporadically on the occasion of updating surveys

4.6 Old: Soldner system ; new: Gauss-Krüger system

4.91 Especially in larger communities

4.10.3 Administrative directions by the Ministery of the Interior: the cadaster of real-estate is a requirement for the public register of lands and serves for tax purposes of rural land.

4.11.1 Pilot projects for an automated cadastral system in 30 communities

5.1
5.32
5.4 G: "Grundbuch" register with legal contents
5.51 L: "Liegenschaftskataster" register with technical informations
5.61
5.63 L: mainly; G: partly
5.64

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Continent	Country	State, District	Informant	NE
EUROPE	**WestGermany**	Bayern	Dr.Ziegler	**DE**

1.1	0,2 - 5	4.1	0,1 - 10	4.10.5	o	6.1	x
1.2		*4.2		4.10.6	o		
1.21	x	4.21	x			6.2	
1.22	x	4.22	o	4.11		6.21	x
*1.23	x	4.23	x	4.11.1	x , pilot project	6.22	x
1.24	x	4.3		4.11.2	o	6.23	o
1.25	x	*4.31	x	4.11.3	o	6.24	x
1.3		4.32	-	4.11.4	x		
1.31	x	4.33	x	4.11.5	x	*6.3	
1.32	x	4.34	x	4.11.6	o	6.31	10
1.33	x	4.35	x			6.32	37
1.34	o	4.4		4.12		6.33	0
1.4		4.41	x	4.12.1	o	6.34	53
1.41	1 - 10	4.42	20	4.12.2	o		
1.42	1 - 10	4.43	x	4.12.3	o	6.4	
1.5	80	4.44	x	4.12.4	x	6.41	x
		4.45	x	4.12.5	o	6.42	x
*2.1	x	4.46	o	4.12.6	o	6.43	x
2.2	95	4.47	o			6.44	x
2.3	5K / 2,5K	4.48	o	*5.1	x	6.45	x
2.4		*4.49	o	*5.2		6.46	x
2.41	x			5.21	x		
2.42	x	4.5		5.22	x	6.5	
2.43	x	4.51	5 K - 2,5K			6.51	x
2.44	x	4.52	5 K - 2,5K	5.3		6.52	o
2.5		4.53	2,5 K - 1,0K	5.31	o	6.53	o
2.51	o	4.6		5.32	x		
2.52	o	4.61	x	5.4		6.6	
		4.62	x	5.41	x	6.61	100/ 0
3.1		4.7		5.42	x	6.62	100/ 0
*3.11	x	4.71	1 - 10	5.43	x	6.63	100/ 0
3.12	-	4.72	1 - 10	5.44	x	6.64	100/ 0
3.2		4.73	1 - 10	5.45	x , partly	6.65	100/ 0
3.21	x	4.74	1 - 10			6.66	100/ 0
3.22	x	4.8	100	5.5		6.67	100/ 0
3.23	x	4.9		5.51	o	6.68	100/ 0
*3.24	o	4.91	x	5.52	x	6.69	100/ 0
*3.3		4.92	1 - 10	5.6		6.70	100/ 0
3.31	x	4.10		5.61	x , partly	6.71	100/ 0
3.32	x	4.10.1	o	5.62	x	6.72	100/ 0
3.33	x	4.10.2	x	*5.63	x , G	6.73	100/ 0
3.34	x	4.10.3	x	5.64	x	6.74	100/ 0
3.4	x	4.10.4	x	5.65	x	6.75	100/ 0

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Continent	Country	State, District	Informant	NE
EUROPE	**WestGermany**	Bayern	Dr.Ziegler	**DE**

1.23 And metal bolts on towers and buildings

2.1 1:5'000, partly 1:2'500

3.11 Under certain circumstances such as new cadastral surveys, new or newly verified boundaries, land consolidation, judgments of courts.

3.24 Exception: boundaries of fisheries can be limited by marks.

3.3 Carved marks as well as marks out of synthetic materials

4.2 First survey graphical; updating and cadastral survey are numeric.

4.31 First survey

4.49 Exception: fishery

5.1 G: "Grundbuch" : register with legal content
L: "Liegenschaftskataster": register with technical information

5.2 Multipurpose cadaster

5.63 Grundbuch

6.3 Survey office of Bavaria

Continent	Country	State, District	Informant	NE
EUROPE	**WestGermany**	Hessen	Landesverm.amt	**DE**

1.1	0,7 - 1	*4.1	0,5 - 2	4.10.5	o	*6.1	x
1.2		4.2		4.10.6	o		
1.21	x	4.21	o			6.2	
1.22	x	4.22	x	4.11		6.21	x
1.23	x	4.23	x	4.11.1	x	6.22	x
1.24	x	4.3		4.11.2	o	6.23	o
1.25	x	4.31	o	*4.11.3	o	6.24	x
1.3		4.32	o	4.11.4	x		
1.31	x	4.33	x	4.11.5	o	6.3	
1.32	x	4.34	x	4.11.6	o	6.31	4
1.33	x	4.35	x			6.32	27
1.34	x	4.4		4.12		6.33	0
*1.4		4.41	x	4.12.1	o	6.34	69
1.41	7	*4.42	53	4.12.2	o		
1.42	5	4.43	x	4.12.3	o	6.4	
1.5	100	*4.44	o	4.12.4	x , pilot projects	6.41	x
		4.45	x	4.12.5	o	6.42	x
*2.1	x	*4.46	o	4.12.6	o	6.43	x
*2.2	50	*4.47	o			6.44	x
2.3	5K	*4.48	o	*5.1	x	6.45	x
2.4		*4.49	o	*5.2		6.46	x
*2.41	x			5.21	x		
*2.42	x	4.5		5.22	x	6.5	
*2.43	x	4.51	2 K - 5K			6.51	o
*2.44	x	4.52	1 K - 2K	5.3		6.52	x
2.5		4.53	0,5 K - 1K	5.31	o	6.53	o
2.51	o	4.6		5.32	x		
2.52	x , partly	4.61	x , conform	5.4		6.6	
		4.62	o	5.41	x	6.61	100/ 0
3.1		4.7		5.42	x	6.62	100/ 0
3.11	x	*4.71	-	5.43	x	6.63	100/ 0
3.12	o	*4.72	-	5.44	x	6.64	100/ 0
3.2		*4.73	-	*5.45	o	6.65	100/ 0
3.21	x	*4.74	-			6.66	100/ 0
3.22	x	4.8	100	5.5		6.67	100/ 0
3.23	x	4.9		5.51	o	6.68	100/ 0
3.24	o	4.91	x	*5.52	x	6.69	75/ 25
*3.3		4.92	-	5.6		6.70	100/ 0
3.31	x	4.10		*5.61	x	6.71	100/ 0
3.32	x	4.10.1	o	5.62	x	*6.72	75/ 25
3.33	x	4.10.2	x	5.63	x	6.73	100/ 0
3.34	x	4.10.3	x	*5.64	x	6.74	100/ 0
3.4	x	4.10.4	o	*5.65	o	6.75	100/ 0

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Continent	Country	State, District	Informant	NE
EUROPE	**WestGermany**	Hessen	Landesverm.amt	**DE**

1.4 1 x σ for new points

2.1 Topographic map 1: 5'000

2.2 Classical map ca. 24%, orthophotomap ca. 26%

2.41-2.44 Three transparent originals for reproduction: property limits, situation, topography

3.3 Also synthetic materials

4.1 In forests 1 point per 3 ha

4.42 8 categories with total 53 groups of use

4.44 Banks can be mapped

4.46-4.49 Only on request

4.71 $d = (0{,}03 + 0{,}06\sqrt{s})m$

4.72-4.73 $d = (0{,}05 + 0{,}03 \cdot s + 0{,}08\sqrt{s})m$

4.74 $d = (0{,}05 + 0{,}05 \cdot s + 0{,}12\sqrt{s})m$

d: tolerated difference of two independent determinations

s: distance in km

5.1 1) L: "Liegenschaftskataster" register with technical information
2) G: "Grundbuch" register with legal content

5.2 L: rights in realty, administration, economy, planning, statistics = multipurpose cadaster

5.45 G: Generally no public restrictions

5.52 G: Compulsory to be of constitutive effect

5.61 G: Exception: rights in realty existing before 1900 are valid also without registration.

5.64 With recourse to the civil servant in case he acted carelessly or wilfully (according to law of state's responsibility).

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EUROPE	**WestGermany**	Hessen	Landesverm.amt	**DE**

5.65 L is not part of G. Cadastral maps are part of L.

6.1 Land surveying is a concern to the different member states of the Federal Republic of Germany.
In Hessen exists - a cadastral law
- a law for property marking and
- a law on national surveying and mapping.

6.72 Only for property surveying partly private.

Continent	Country	State, District	Informant	NE
EUROPE	**WestGermany**	Niedersachsen	Minister d.Inn.	**DE**

1.1	0,5/-	4.1	0,1 - 1	4.10.5	o	6.1	x
1.2		4.2		4.10.6	o		
1.21	x	4.21	o			6.2	
1.22	x	4.22	x	4.11		6.21	x
1.23	x	4.23	x	4.11.1	x	6.22	x
1.24	x	4.3		4.11.2	o	6.23	o
*1.25	x	4.31	o	4.11.3	o	6.24	x
1.3		4.32	x , some	4.11.4	o		
1.31	o	4.33	o	4.11.5	o	6.3	
1.32	o	4.34	x	4.11.6	o	6.31	6
1.33	x	4.35	x			6.32	40
1.34	o	4.4		4.12		6.33	0
1.4		4.41	x	4.12.1	o	6.34	54
1.41	1 - 2	4.42	50	4.12.2	o		
1.42	2 - 3	4.43	x	4.12.3	o	6.4	
1.5	40	4.44	o	4.12.4	o	6.41	o
		4.45	x	4.12.5	o	6.42	o
2.1	x	4.46	o	4.12.6	o	6.43	o
2.2	100	4.47	o			6.44	x
2.3	5K	4.48	o	*5.1	x	6.45	x
2.4		4.49	o	*5.2		6.46	o
2.41	x			5.21	o		
2.42	x	4.5		5.22	x	6.5	
2.43	x	4.51	2 K - 5K			6.51	o
*2.44	x	4.52	1 K - 2K	*5.3		*6.52	x
2.5		4.53	0,5 K - 1K	*5.31	o	6.53	o
2.51	x , occasionally	4.6		*5.32	x		
2.52	o	4.61	x	*5.4		6.6	
		4.62	o	*5.41	x	6.61	100/ 0
3.1		4.7		*5.42	x	6.62	100/ 0
3.11	x	4.71	1 - 10	*5.43	x	6.63	100/ 0
3.12	o	4.72	6	*5.44	x	6.64	100/ 0
3.2		4.73	6	*5.45	o	6.65	100/ 0
3.21	x	4.74	6			6.66	100/ 0
3.22	x	4.8	100	*5.5		6.67	100/ 0
3.23	x	4.9		*5.51	o	*6.68	70/ 30
3.24	o	4.91	o	*5.52	x	*6.69	100/ 0
3.3		4.92	-	*5.6		*6.70	100/ 0
3.31	x	4.10		*5.61	o	6.71	70/ 30
3.32	x	4.10.1	x	*5.62	x	6.72	100/ 0
3.33	o	4.10.2	o	*5.63	x	6.73	100/ 0
3.34	x	4.10.3	o	5.64	x	6.74	100/ 0
3.4	x	4.10.4	o	*5.65	x	6.75	100/ 0

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Continent	Country	State, District	Informant	NE
EUROPE	**WestGermany**	Niedersachsen	Minister d.Inn.	**DE**

1.25 Without survey signals.

2.44 Scale 1:5'000; altimetry is completed to 45% of the total area.

5.1 Two public registers: G "Grundbuch": register of rights in realty. L "Liegenschaftskataster": description of property.

5.2 Multipurpose cadaster

5.31-5.63 For 5.3, 5.4, 5.5, 5.61-63 all indications concern register G.

5.65 Part of register L

6.52 Private contractors must be authorized by public certificate.

6.68 See 6.52

6.71 See 6.52

Continent	Country	State, District	Informant	NE
EUROPE	**Hungary**		Prof.A.Detreköi	**HU**

*1.1	0,5 - 1	4.1	0,2 - 4	4.10.5	x	6.1	x
*1.2		4.2		4.10.6	o		
1.21	x	4.21	o			6.2	
1.22	x	4.22	x	4.11		6.21	x
1.23	o	4.23	x	4.11.1	x	6.22	x
1.24	x	4.3		4.11.2	o	6.23	o
1.25	x	4.31	o	4.11.3	o	6.24	x
1.3		4.32	x	4.11.4	x		
1.31	x	4.33	x	4.11.5	x	6.3	
1.32	o	4.34	x	4.11.6	o	6.31	20
1.33	x	4.35	x			6.32	35
1.34	x	4.4		4.12		6.33	0
1.4		4.41	x	4.12.1	o	6.34	45
1.41	1 - 2	4.42	9	4.12.2	o		
1.42	2 - 3	4.43	x	4.12.3	o	6.4	
1.5	70	4.44	x , partly	4.12.4	o	6.41	x
		4.45	x	4.12.5	o	6.42	x
2.1	x	4.46	o	4.12.6	o	6.43	x
2.2	100	4.47	o			6.44	x
2.3	10K	4.48	o	5.1	x	6.45	x
2.4		4.49	o	5.2		6.46	x
2.41	x			5.21	x		
2.42	x	4.5		5.22	x	6.5	
2.43	o	4.51	4K			6.51	x
2.44	x	4.52	4K - 2 K	5.3		6.52	x , for 6.72
2.5		4.53	2K - 0,5K	5.31	o	6.53	o
*2.51	x	4.6		5.32	x		
2.52	o	4.61	x	5.4		6.6	
		4.62	o	5.41	x	6.61	100/ 0
3.1		4.7		5.42	x	6.62	100/ 0
3.11	x	4.71	1 - 3	5.43	x	6.63	100/ 0
3.12	o	4.72	20 - 50	5.44	x	6.64	100/ 0
3.2		4.73	5 - 20	5.45	x	6.65	100/ 0
3.21	x	4.74	5			6.66	100/ 0
3.22	x	*4.8	100	5.5		6.67	100/ 0
3.23	x	4.9		5.51	o	6.68	100/ 0
3.24	x , partly	4.91	x , in towns	5.52	x	6.69	100/ 0
3.3		4.92	1 - 5	5.6		6.70	100/ 0
3.31	x	4.10		5.61	x	6.71	100/ 0
3.32	o	4.10.1	o	5.62	x	6.72	75/ 25
3.33	x	4.10.2	o	5.63	x	6.73	100/ 0
3.34	o	4.10.3	o	5.64	x	6.74	100/ 0
3.4	x	4.10.4	x	5.65	x	6.75	100/ 0

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Continent	Country	State, District	Informant	NE
EUROPE	**Hungary**		Prof.A.Detreköi	**HU**

1.1 4th order

1.2 Stone of concrete

2.51 As a method of production; not as a final product

4.8 Modern resurveys to 23 %

Continent	Country	State, District	Informant	NE
EUROPE	**Ireland**		A.P.Smith	**IE**

1.1	0,01	4.1	0 - 0	4.10.5	x	6.1	o
1.2		4.2		4.10.6	o		
1.21	x	4.21	x			6.2	
1.22	x	4.22	o	4.11		6.21	o
1.23	o	4.23	o	4.11.1	-	6.22	x
1.24	o	4.3		4.11.2	o	6.23	o
1.25	x	4.31	o	4.11.3	o	6.24	o
1.3		4.32	o	4.11.4	x		
1.31	x	4.33	o	4.11.5	x	6.3	
1.32	x	4.34	o	4.11.6	o	6.31	20
1.33	x	4.35	x			6.32	100
1.34	o	4.4		4.12		6.33	0
1.4		4.41	x	4.12.1	o	6.34	0
1.41	25 ?	4.42	-	4.12.2	o		
1.42	25 ?	4.43	x	4.12.3	o	6.4	
1.5	95	4.44	x	4.12.4	x	6.41	o
		4.45	x	4.12.5	o	6.42	o
2.1	x	4.46	o	4.12.6	o	6.43	o
2.2	90	4.47	x			6.44	o
2.3	2,5K	4.48	o	5.1	x	6.45	o
2.4		4.49	o	5.2		6.46	o
2.41	x			5.21	o		
2.42	x	4.5		5.22	x	6.5	
2.43	o	4.51	10,56K - 10,56K			6.51	o
2.44	x	4.52	2,5 K - 2,5 K	5.3		6.52	x
2.5		4.53	1 K - 1 K	5.31	x	6.53	o
2.51	o	4.6		5.32	x		
2.52	o	4.61	x	5.4		6.6	
		4.62	o	5.41	x	6.61	100/ 0
3.1		4.7		5.42	x	6.62	100/ 0
3.11	o	4.71	-	5.43	x	6.63	100/ 0
3.12	o	4.72	-	5.44	x	6.64	100/ 0
3.2		4.73	-	5.45	x	6.65	100/ 0
3.21	x	4.74	-			6.66	100/ 0
3.22	x	4.8	90	5.5		*6.67	- / -
3.23	x	4.9		*5.51	x	*6.68	- / -
3.24	o	4.91	x	*5.52	x	*6.69	- / -
3.3		4.92	-	5.6		6.70	- / -
3.31	x	4.10		5.61	o	*6.71	- / -
3.32	o	4.10.1	o	5.62	x	6.72	- / -
3.33	o	4.10.2	o	5.63	x	6.73	100/ 0
3.34	o	4.10.3	o	5.64	x	6.74	100/ 0
*3.4	x	4.10.4	x	5.65	x	6.75	100/ 0

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Continent	Country	State, District	Informant	NE
EUROPE	**Ireland**		A.P.Smith	**IE**

3.4 Of civil boundary

5.51 In urban zones

5.52 In rural zones

6.67 Except for civil boundaries

6.68 Except for civil boundaries

6.69 Except for civil boundaries

6.71 Data banks for some utilities

Continent	Country	State, District	Informant	NE
EUROPE	**Italy**		P.Raffaelli	**IT**

1.1	0,1 - 0,5	4.1	0,2 - 0,4	4.10.5	o	6.1	x
1.2		4.2		4.10.6	-		
1.21	-	4.21	x			6.2	
1.22	-	4.22	o	4.11		6.21	o
1.23	-	4.23	x , partly	4.11.1	x , partly	6.22	o
1.24	x	4.3		4.11.2	o	6.23	o
1.25	x	4.31	o	4.11.3	x , partly	6.24	x
1.3		4.32	x	4.11.4	o		
1.31	x	4.33	x	4.11.5	o	6.3	
1.32	o	4.34	x	4.11.6	-	6.31	0
1.33	x	4.35	x			6.32	0
1.34	x	4.4		4.12		6.33	0
1.4		4.41	x	4.12.1	o	6.34	100
1.41	5 - 10	4.42	32	4.12.2	o		
*1.42	10 - 20	4.43	x	4.12.3	o	6.4	
1.5	100	4.44	o	4.12.4	o	6.41	o
		*4.45	x	4.12.5	o	6.42	o
2.1	x , partly	4.46	x	4.12.6	o	6.43	o
2.2	50	4.47	o			6.44	o
2.3	5K / 10K	4.48	x	5.1	x	6.45	o
2.4		4.49	o	5.2		6.46	o
2.41	x			5.21	x		
2.42	x	4.5		5.22	o	6.5	
2.43	o	4.51	6K - 1,5K			6.51	o
2.44	x	4.52	2K - 1 K	5.3		6.52	x
2.5		4.53	1K - 0,5K	5.31	o	6.53	o
2.51	o	4.6		5.32	x		
2.52	o	4.61	x	5.4		6.6	
		4.62	x	5.41	x	6.61	100/ 0
3.1		4.7		5.42	x	6.62	100/ 0
3.11	o	4.71	5 - 10	5.43	x	6.63	100/ 0
3.12	x	4.72	15 - 20	*5.44	x	6.64	100/ 0
3.2		4.73	15 - 20	5.45	x	6.65	0/100
3.21	x	4.74	15 - 20			6.66	0/100
3.22	x	4.8	100	5.5		6.67	100/ 0
3.23	x	4.9		5.51	o	6.68	100/ 0
3.24	o	4.91	o	5.52	x	6.69	100/ 0
3.3		4.92	-	5.6		6.70	100/ 0
3.31	x	4.10		5.61	x	6.71	100/ 0
3.32	o	4.10.1	o	5.62	o	6.72	100/ 0
3.33	o	4.10.2	o	5.63	o	6.73	100/ 0
3.34	o	4.10.3	o	5.64	x	6.74	100/ 0
3.4	o	4.10.4	o	5.65	x	6.75	100/ 0

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Continent	Country	State, District	Informant	NE
EUROPE	**Italy**		P.Raffaelli	**IT**

1.42 1 cm for closing error of levelling lines. 10÷20 cm for xy-coordinates - closing errors in triangles.

4.45 Cadaster of property not existing. Only information on ownership.

5.44 Mortgages

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Continent	Country	State, District	Informant	NE
ASIA	**Japan**		Y.Harada	**JP**

1.1	0,1 - 0,25	4.1	10 - 100	4.10.5	o		6.1	x
1.2		4.2		4.10.6	o			
1.21	x	4.21	x				6.2	
1.22	o	4.22	x	4.11			6.21	x
1.23	x	4.23	o	4.11.1	o		6.22	x
1.24	o	4.3		4.11.2	o		6.23	x
1.25	o	4.31	x	4.11.3	o		6.24	o
1.3		4.32	x	4.11.4	x			
1.31	x	4.33	o	4.11.5	o		6.3	
1.32	x	4.34	o	4.11.6	o		6.31	60
1.33	x	4.35	o				6.32	30
1.34	x	4.4		4.12			6.33	10
1.4		4.41	x	4.12.1	o		6.34	0
1.41	7	4.42	23	4.12.2	o			
1.42	15	4.43	x	4.12.3	o		6.4	
1.5	30	4.44	x	4.12.4	x		6.41	x
		4.45	x	4.12.5	o		6.42	x
2.1	x	4.46	o	4.12.6	o		6.43	x
2.2	40	4.47	x				6.44	x
2.3	2,5K	4.48	o	5.1	x		6.45	x
2.4		4.49	x	5.2			6.46	x
2.41	x			5.21	x			
2.42	x	4.5		5.22	x		6.5	
2.43	o	4.51	2,5 K - 5 K				6.51	o
2.44	x	4.52	0,5 K - 1 K	5.3			6.52	x
2.5		4.53	0,25K - 0,5K	5.31	x	*	6.53	x
2.51	x	4.6		5.32	x			
2.52	o	4.61	x	5.4			6.6	
		4.62	o	5.41	x		6.61	100/ 0
3.1		4.7		5.42	x		6.62	30/ 70
3.11	o	4.71	3 - 5	5.43	x		6.63	100/ 0
3.12	x	4.72	20	5.44	x		6.64	100/ 0
3.2		4.73	5	5.45	o		6.65	2/ 98
*	3.21	o	4.74	3			6.66	2/ 98
3.22	x	4.8	20	5.5			6.67	100/ 0
3.23	x	4.9		*5.51	x		6.68	50/ 50
3.24	o	4.91	x	*5.52	x		6.69	50/ 50
3.3		4.92	1 - 3	5.6			6.70	50/ 50
3.31	x	4.10		5.61	x		6.71	100/ 0
3.32	o	4.10.1	o	5.62	o		6.72	50/ 50
3.33	x	4.10.2	o	5.63	x		6.73	100/ 0
3.34	x	4.10.3	o	5.64	x		6.74	10/ 90
3.4	x	4.10.4	x	5.65	x		6.75	0/100

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Continent	Country	State, District	Informant	NE
ASIA	**Japan**		Y.Harada	**JP**

3.21 In cadastral maps the national borders are not represented.

5.51 For Rights

5.52 For present state of estate

6.53 Partly done by private enterprises

Continent	Country	State, District	Informant	NE
EUROPE	**Luxembourg**		P.Schonckert	**LU**

1.1	0,5 - 2	4.1	-	4.10.5	o	6.1	x
1.2		4.2		4.10.6	o		
1.21	x , concrete	4.21	o			6.2	
1.22	x	4.22	x	4.11	planned	6.21	x
1.23	x	4.23	o	4.11.1	o	6.22	o
1.24	x	4.3		4.11.2	o	6.23	o
1.25	x , rarely	4.31	o	4.11.3	o	6.24	o
1.3		4.32	o	4.11.4	o		
1.31	x	4.33	o	4.11.5	o	6.3	
1.32	-	4.34	x	4.11.6	o	6.31	100
1.33	-	4.35	x			6.32	-
*1.34	x	4.4		4.12		6.33	-
*1.4		4.41	x	4.12.1	x	6.34	-
1.41	2	4.42	-	4.12.2	o		
1.42	0,1	4.43	x	4.12.3	o	6.4	
1.5	95	4.44	o	4.12.4	-	6.41	x
		4.45	x	4.12.5	-	6.42	-
2.1	o	4.46	o	4.12.6	-	6.43	-
2.2	-	4.47	o			6.44	-
*2.3	10K	4.48	o	*5.1	o	6.45	-
2.4		4.49	o	5.2		6.46	-
2.41	x			5.21	-		
2.42	x	4.5		5.22	-	6.5	
2.43	o	4.51	1 K - 5 K			6.51	-
2.44	x	4.52	1 K - 2,5K	5.3		6.52	x
2.5		4.53	0,2K - 0,5K	5.31	-	6.53	-
2.51	o	4.6		5.32	-		
2.52	o	4.61	x	5.4		6.6	
		4.62	-	5.41	-	6.61	100/ 0
3.1		4.7		5.42	-	6.62	100/ 0
3.11	-	*4.71	-	5.43	-	6.63	100/ 0
3.12	x	*4.72	-	5.44	-	6.64	100/ 0
3.2		*4.73	-	5.45	-	6.65	100/ 0
3.21	x	*4.74	-			6.66	100/ 0
3.22	-	4.8	5	5.5		6.67	100/ 0
3.23	x	4.9		5.51	-	6.68	90/ 10
3.24	o	4.91	x	5.52	-	6.69	100/ 0
3.3		4.92	2 - 9	5.6		6.70	100/ 0
3.31	x	4.10	planned	5.61	-	6.71	90/ 10
3.32	x	4.10.1	o	5.62	-	6.72	100/ 0
3.33	o	4.10.2	o	5.63	-	*6.73	100/ 0
3.34	x	4.10.3	o	5.64	-	*6.74	100/ 0
3.4	x	4.10.4	o	5.65	-	*6.75	100/ 0

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Continent	Country	State, District	Informant	NE
EUROPE	**Luxembourg**		P.Schonckert	**LU**

1.34 Replaces triangulation in woods.

1.4 The triangulation and the altimetric control points belong to two different networks. 1) Triangulation completed to 95% ; 2) Altimetric network: - 1st and 2nd order completed to 100%. σ/km = 1 mm ; density: 0,6 control points per km². - 3d order completed to 12% ; density: 1,4 control points per km².

2.3 Available as a monochrome enlargement of the 1:20'000 map.

4.71 0.04 + D/1000 m

4.72 0.10 + D/1000 m

4.73 0.08 + D/1000 m

4.74 0.04 + D/1000 m

5.1 Public register of real estate is planned. There exist a) a cadastral register, b) a register of mortgages being archived.

6.73-6.75 Cadastral register

Continent	Country	State, District	Informant	NE
ASIA	**Malaysia**		Seah Kok Seang	**MY**

1.1	0,03 - 0,28	4.1	4	4.10.5	o	6.1	o
1.2		4.2		4.10.6	x		
1.21	x	4.21	x			6.2	
1.22	o	4.22	x	4.11		6.21	x
1.23	x	4.23	x	4.11.1	x	6.22	x
1.24	x	4.3		4.11.2	o	6.23	x
1.25	x	4.31	x	4.11.3	x	6.24	x
1.3		4.32	o	4.11.4	o		
1.31	x	4.33	o	4.11.5	o	6.3	
1.32	x	4.34	o	4.11.6	x	6.31	5
1.33	x	4.35	x			6.32	0,5
1.34	x	4.4		4.12		6.33	-
1.4		4.41	x	4.12.1	x	6.34	2
1.41	10	4.42	3	4.12.2	o		
1.42	50	4.43	x	4.12.3	o	6.4	
1.5	100	4.44	x	4.12.4	o	6.41	x
		4.45	x	4.12.5	o	6.42	x
2.1	o	4.46	o	4.12.6	o	6.43	o
2.2	100	4.47	o			6.44	x
2.3	25K	4.48	o	5.1	x	6.45	x
2.4		4.49	o	5.2		6.46	x
2.41	x			5.21	x		
2.42	x	4.5		5.22	x	6.5	
2.43	o	4.51	1 K - 10K			6.51	o
2.44	x	4.52	1 K - 10K	5.3		6.52	x
2.5		4.53	0,2K - 5K	5.31	x	6.53	o
2.51	x	4.6		5.32	x		
2.52	o	4.61	x	5.4		6.6	
		4.62	o	5.41	x	6.61	100/ 0
3.1		4.7		5.42	x	6.62	100/ 0
3.11	x	4.71	-	5.43	x	6.63	100/ 0
3.12	-	4.72	-	5.44	x	6.64	100/ 0
3.2		4.73	-	5.45	x	6.65	100/ 0
3.21	x	4.74	-			6.66	100/ 0
3.22	x	4.8	100	5.5		6.67	70/ 30
3.23	o	4.9		5.51	x	6.68	70/ 30
3.24	x	4.91	x	5.52	x	6.69	70/ 30
3.3		4.92	0,003 - 0,012	5.6		6.70	100/ 0
3.31	x	4.10		5.61	x	6.71	100/ 0
3.32	x	4.10.1	x	5.62	x	6.72	100/ 0
3.33	x	4.10.2	o	5.63	x	6.73	100/ 0
3.34	x	4.10.3	x	5.64	x	6.74	100/ 0
3.4	x	4.10.4	o	5.65	x	6.75	100/ 0

Control networks, large scale mapping, legal survey, cadastre, land property registration, land information systems in 37 countries and states around the world	Prof. Dr. H.J. Matthias Federal Institute of Technology Dept. of Geodesy and Photogrammetry CH - 8093 Zurich

Continent	Country	State, District	Informant	NE
EUROPE	**Netherlands**		J.L.G.Henssen	**NL**

*1.1	0,2 - 0,5	*4.1	0,1 - 6	4.10.5	o	*6.1	o
1.2		4.2		4.10.6	o		
1.21	o	4.21	o			6.2	
1.22	o	4.22	x	4.11		6.21	x
*1.23	o	4.23	o	4.11.1	x	6.22	x
1.24	x	4.3		4.11.2	o	6.23	o
1.25	x	*4.31	o	*4.11.3	x	6.24	x
1.3		4.32	x	4.11.4	o		
1.31	o	4.33	x	4.11.5	x	6.3	
1.32	o	4.34	x	*4.11.6	x	6.31	15
1.33	x	4.35	x			6.32	25
1.34	x	4.4		4.12		6.33	0
1.4		4.41	o	4.12.1	x	6.34	60
1.41	2	4.42	-	4.12.2	o		
1.42	-	4.43	x	*4.12.3	x	6.4	
1.5	60	4.44	o	4.12.4	o	6.41	o
		4.45	x	4.12.5	x	6.42	o
2.1	x	4.46	o	4.12.6	o	6.43	o
2.2	10	4.47	x			6.44	o
*2.3	1K	4.48	o	5.1	x	6.45	o
2.4		4.49	x	*5.2		6.46	o
2.41	o			5.21	x		
2.42	x	4.5		5.22	x	6.5	
2.43	o	4.51	2,5K - 5 K			6.51	o
2.44	x	4.52	2,5K - 2 K	5.3		6.52	x
2.5		4.53	1 K - 0,5K	5.31	x	6.53	o
2.51	o	4.6		5.32	o		
2.52	o	4.61	o	5.4		6.6	
		4.62	x	5.41	x	6.61	100/ 0
*3.1		4.7		5.42	x	6.62	90/ 10
3.11	o	4.71	1 - 3	5.43	x	6.63	100/ 0
3.12	x	4.72	20	5.44	x	6.64	100/ 0
3.2		4.73	10	5.45	x	6.65	50/ 50
3.21	x	4.74	5			6.66	100/ 0
3.22	o	4.8	100	5.5		6.67	0/100
3.23	o	4.9		5.51	o	6.68	0/100
3.24	x	4.91	x	5.52	x	6.69	0/100
3.3		4.92	10 - 20	5.6		6.70	100/ 0
3.31	x	4.10		*5.61	x	6.71	100/ 0
3.32	o	4.10.1	o	5.62	o	6.72	100/ 0
3.33	x	4.10.2	o	*5.63	o	6.73	100/ 0
3.34	x	4.10.3	o	5.64	x	6.74	100/ 0
3.4	x	4.10.4	o	5.65	x	6.75	100/ 0

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Continent	Country	State, District	Informant	NE
EUROPE	**Netherlands**		J.L.G.Henssen	**NL**

1.1 4th order

1.23 Metal bolts in buildings of many kinds, on bridges.

2.3 In rural areas 1:2'000 ; in urban areas 1:5'000

3.1 There is no law for marking property boundaries. Before surveying measurement of subdivisions the boundaries must be marked. This is the duty of the land owner and is fixed in the administrative regulations of cadaster.

4.1 0,1 in rural areas; 1 - 3 in urban areas within the country side; 3 - 6 in urban areas, towns.

4.31 Networks of lateral obliques are often used.

4.11.3 By order of ministry

4.11.6 By order of communities

4.12.3 Law of cadaster in parliament

5.2 There only exists a cadaster for tax purposes; in practice it often fulfils the purpose of a legal cadaster. The data base is increasingly being used for other administrative purposes.

5.61 This concerns only the transfer of ownership and the constitution of mortgages. In the Netherlands usucaption of property is possible.

5.63 Protection of the rights of individuals in good faith is not clearly defined.

6.1 The ministry issues administrative regulations on the techniques to be applied; no law.

Continent	Country	State, District	Informant	NE
OCEANIA	**New Zealand**		Inst.of Surv.	**NZ**

*1.1	0,5 - 5	*4.1	0,25 - 0,5	4.10.5	-	*6.1	x
1.2		4.2		4.10.6	-		
1.21	o	*4.21	x			6.2	
*1.22	x	*4.22	x	4.11		6.21	x
*1.23	x	*4.23	x	4.11.1	-	*6.22	x
1.24	o	4.3		*4.11.2	x	6.23	o
*1.25	x	*4.31	x	*4.11.3	x	6.24	o
1.3		4.32	x	4.11.4	-		
1.31	x	4.33	x	4.11.5	-	6.3	
1.32	o	4.34	o	4.11.6	-	*6.31	65
1.33	x	*4.35	x			*6.32	
1.34	x	4.4		*4.12		*6.33	
*1.4		4.41	o	*4.12.1	x	*6.34	35
*1.41		4.42	0	4.12.2	o		
*1.42		*4.43	x	4.12.3	x	6.4	
*1.5	60	4.44	o	4.12.4	-	6.41	x
		4.45	x	4.12.5	-	6.42	x
*2.1	o	*4.46	o	4.12.6	-	6.43	o
2.2	100	4.47	x			6.44	x
2.3	50K	*4.48	o	5.1	x	6.45	x
2.4		4.49	x	5.2		*6.46	o
2.41	x			*5.21	x		
2.42	x	4.5		*5.22	x	6.5	
*2.43	o	*4.51				6.51	o
2.44	x	*4.52		5.3		6.52	x
2.5		*4.53		5.31	o	6.53	o
*2.51	x	4.6		*5.32	x		
2.52	o	*4.61	o	5.4		6.6	
		*4.62	o	5.41	x	6.61	90/ 10
3.1		4.7		5.42	x	6.62	90/ 10
3.11	x	4.71	5 K	5.43	x	6.63	90/ 10
*3.12	o	4.72	2,5K	5.44	x	6.64	100/ 0
3.2		4.73	3,5K - 2,5K	*5.45	x	6.65	20/ 80
*3.21	o	4.74	5 K			6.66	100/ 0
*3.22	x	4.8	100	5.5		6.67	20/ 80
*3.23	x	4.9	x	5.51	-	6.68	20/ 80
3.24	-	*4.91		5.52	x	6.69	20/ 80
3.3		4.92	-	5.6		6.70	100/ 0
*3.31	o	4.10		*5.61	x	6.71	100/ 0
*3.32		4.10.1	-	5.62	x	6.72	100/ 0
*3.33	x	4.10.2	x	5.63	x	6.73	100/ 0
3.34	x	4.10.3	x	5.64	x	6.74	100/ 0
*3.4	x	4.10.4	-	*5.65	x	6.75	100/ 0

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Continent	Country	State, District	Informant	NE
OCEANIA	**New Zealand**		Inst.of Surv.	**NZ**

1.1 New Zealand has large areas of mountainous land covered only by 1st order - while much of the control in farm land is by traverse.

1.22 Buried steel marks

1.23 A few

1.25 A few in cities

1.4 Cadastral Ground Traverse, Class A 1:5'000. Class B 1:2'500

1.41 3rd = 1:50'000

1.42 $\pm 20 \sqrt{K}$ mm (Km)

1.5 3rd and 4th geodetic, 5th old cadastral trigs

2.1 Published basic topo 1:50'000 (N2MS 260), all mapped at 1:25'000, manuscript copy available (N2MS 270)

2.43 But 100 % coverage on counter part sheets of cadastral mapping 1:50'000 (N2MS 261)

2.51 Only for specific project mapping

3.12 Allowed in a few specific cases called "computed plan"

3.21 No National boundaries

3.22 Both follow property boundaries

3.23 Both follow property boundaries

3.31 A few concrete marks

3.32 Iron tubes, iron bars, iron spikes, lead plugs, aluminium pegs

3.33 Wooden boundary pegs

3.4 It is an offence to wilfully destroy **any** survey marks

Continent	Country	State, District	Informant	NE
OCEANIA	**New Zealand**		Inst.of Surv.	**NZ**

4.1 In urban areas control marks are at most street corners at approx. 250 m intervals

4.21 Only in class C surveys or stream boundaries on other surveys

4.22 The whole country is field measures plotted on plans

4.23 A mayor project is converting all survey records to this form

4.31 Used for some natural boundaries

4.35 Mostly irregular traverse with angles and distances measured

4.43 Buildings are fixed for strata title and for flats plans

4.46 Restrictions imposed by Statute or Town Planning ordinances are not registered

4.48 Restrictions imposed by Statute or Town Planning ordinances are not registered

4.51-53 The record is a survey on title plan drawn at an appropriate scale on an AZ sheet (420x594 mm) to show boundaries and bearings and distances clearly.

4.61+62 The ground surveys are on TM for each meridional circuit. The 1:50'000 maps topo and cadastral are on N.Z. map grid a minimum scale error projection.

4.91 $\pm 10\sqrt{K}$ m = Urban; $\pm 20\sqrt{K}_{km}$ = Rural

4.11.2 Registered title for all land in Land Registry

4.11.3 Yes. the Land Transfer Act

4.12 See paper by I.F. Stirling presented at FIG PC Meeting Katowice in June 1985

The cadastral survey and the land registry and the land valuation systems are in process of being recorded on computer to become national land information system.

Continent	Country	State, District	Informant	NE
OCEANIA	**New Zealand**		Inst.of Surv.	**NZ**

5.21 Is the basis for land tax by Local Authorities called **rates**

5.22 Record of ownership and transactions

5.32 Torrens System

5.45 Only a few are registered - others exist in statutes or planning documents

5.61 But there are some exceptions

5.65 The survey plans - not the cadastral maps are part of the register

6.1 The Survey Act 86

6.22 Technician level not professional

6.31 University training started producing Graduates 1964

6.32+ 33 Technicians assist surveyors

6.34 Older surveyors from old system indentured training

6.46 Done by Public Servants in Lands and Deeds Division of Justice Department

Continent	Country	State, District	Informant	NE
EUROPE	**Sweden**		Linder-Aronson	**SE**

*1.1	1 - 6	4.1	0,5 - 6	4.10.5	x	6.1	x
1.2		4.2		4.10.6	x		
1.21	x	4.21	x , all kinds			6.2	
1.22	x	4.22	x , all kinds	4.11		6.21	x
1.23	x	4.23	x	4.11.1	x	6.22	x
1.24	x	4.3		4.11.2	o	6.23	o
1.25	x	4.31	o , formerly yes	4.11.3	x	6.24	o
1.3		4.32	o , formerly yes	4.11.4	x		
1.31	x	4.33	x	4.11.5	x	6.3	
1.32	x	4.34	x	4.11.6	o	6.31	30
1.33	x	4.35	x			6.32	70
1.34	x	4.4		4.12		6.33	0
*1.4		4.41	x , partly	4.12.1	o	6.34	0
1.41	1 - 2	4.42	3	4.12.2	o		
1.42	1 - 2	4.43	x	4.12.3	o	6.4	
*1.5	80	4.44	x , partly	4.12.4	o	6.41	x
		4.45	x	4.12.5	o	6.42	x
*2.1	x	4.46	x	4.12.6	o	6.43	x
2.2	100	4.47	x			6.44	x
2.3	10K	4.48	o	5.1	x	6.45	o
2.4		4.49	x	*5.2		6.46	x
2.41	x			5.21	o		
2.42	x	4.5		5.22	x	6.5	
2.43	x	4.51	20K - 1 K			6.51	o
2.44	x	4.52	10K - 1 K	5.3		*6.52	o
*2.5		4.53	1K - 0,4K	5.31	o	6.53	x
2.51	x , partly	4.6		5.32	x		
2.52	x , partly	4.61	x	5.4		*6.6	
		4.62	o	5.41	x	6.61	100/ 0
*3.1		4.7		5.42	x	6.62	40/ 50
3.11	x	4.71	2	5.43	x	*6.63	80/ 20
*3.12	x	4.72	10 - 100	5.44	x	6.64	100/ 0
3.2		4.73	5 - 10	5.45	x	6.65	100/ 0
3.21	x	4.74	3			6.66	100/ 0
3.22	x	4.8	100	5.5		6.67	100/ 0
3.23	x	4.9		5.51	o	6.68	100/ 0
3.24	x , partly	4.91	x	5.52	x	6.69	100/ 0
3.3		4.92	2 - 20	5.6		6.70	100/ 0
3.31	x	4.10		5.61	o	6.71	20/ -
3.32	x	4.10.1	x	5.62	x	6.72	20/ -
3.33	x	4.10.2	x	5.63	x	6.73	100/ 0
3.34	x	4.10.3	x	5.64	x , + communities	6.74	100/ 0
3.4	x	4.10.4	x	5.65	x	6.75	100/ 0

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Continent	Country	State, District	Informant	NE
EUROPE	**Sweden**		Linder-Aronson	**SE**

1.1 The net covering the whole country has in general 10 km between the points in the net of 1st order. The state has the responsibility for this. The lower orders are a matter of the communities. In more urban areas the density is 1 - 6.
The answers for 1.1 - 1.5 correspond to the nets of the communities.

1.4 There are different deviations accepted in different types of areas: "Mätklasser"

1.5 10 km 95 % ; 1-6/m² 70 %

2.1 The state has an official economic map at 1:10'000 (1:20'000)
The communities have in urban areas maps at 1:4'000 - 1:1'000

2.5 Yes, but in production only since 1966

3.1 Not in all areas, but e.g. in towns

3.12 Where there is a sufficient location by coordinates

5.2 Multipurposes; it is the fundamental object for many purposes

6.52 Only very little done by the government

6.6 It is divided between state and communities

6.63 State 10 %, communities 70 % ÷ 80 %

Continent	Country	State, District	Informant	NE
ASIA	**Syria**		Ghassan Tayara	**SY**

1.1	1 - 2	4.1	1 - 2	4.10.5	o	6.1	x
1.2		4.2		4.10.6	o		
1.21	x	4.21	x			6.2	
1.22	o	4.22	x	4.11		6.21	x
1.23	x	4.23	o	4.11.1	x	6.22	x
1.24	x	4.3		4.11.2	o	6.23	x
1.25	x	4.31	x	4.11.3	x	6.24	x,vocational
1.3		4.32	x	4.11.4	o		
1.31	x	4.33	o	4.11.5	x	6.3	
1.32	o	4.34	o	4.11.6	x	6.31	1
1.33	o	4.35	x			6.32	5
1.34	o	4.4		4.12		6.33	90
1.4		4.41	o	4.12.1	o	6.34	4
1.41	15	4.42	x	4.12.2	o		
1.42	5	4.43	x	4.12.3	o	6.4	
1.5	40	4.44	o	4.12.4	o	6.41	x
		4.45	x	4.12.5	o	6.42	o
2.1	o	4.46	x	4.12.6	o	6.43	x
2.2	10	4.47	x			6.44	x
2.3	2K	4.48	x	5.1	x	6.45	x
2.4		4.49	x	5.2		6.46	x
2.41	o			5.21	x		
2.42	x	4.5		5.22	x	6.5	
2.43	x	4.51	1 K - 20K			6.51	x
2.44	o	4.52	1 K - 20K	5.3		6.52	o
2.5		4.53	0,5K - 1K	5.31	x	6.53	o
2.51	o	4.6		5.32	x		
2.52	o	4.61	x	5.4		6.6	
		4.62	x	5.41	x	6.61	100/ 0
3.1		4.7		5.42	o	6.62	90/ 10
3.11	x	4.71	5 - 20	5.43	o	6.63	100/ 0
3.12	o	4.72	25	5.44	o	6.64	100/ 0
3.2		4.73	15	5.45	x	6.65	100/ 0
3.21	x	4.74	5			6.66	100/ 0
3.22	o	4.8	45	5.5		6.67	100/ 0
3.23	o	4.9		5.51	o	6.68	100/ 0
3.24	o	4.91	o	5.52	x	6.69	100/ 0
3.3		4.92	10 - 30	5.6		6.70	100/ 0
3.31	x	4.10		5.61	-	6.71	100/ 0
3.32	o	4.10.1	x	5.62	x	6.72	100/ 0
3.33	o	4.10.2	o	5.63	x	6.73	100/ 0
3.34	o	4.10.3	x	5.64	o	6.74	100/ 0
3.4	x	4.10.4	o	5.65	x	6.75	100/ 0

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Continent	Country	State, District	Informant	NE
ASIA	**Turkey**		Erol Köktürk	**TR**

*1							
1.1	0 - 3	4.1	1 - 2	4.10.5	o	6.1	o
1.2		4.2		4.10.6	o		
*1.21	-	4.21	o			6.2	
1.22	x	4.22	x	4.11		6.21	x
1.23	x	4.23	o	4.11.1	o	*6.22	x
1.24	x	4.3		4.11.2	o	6.23	o
1.25	x	4.31	o	4.11.3	o	6.24	x
1.3		*4.32	x	4.11.4	o		
1.31	x	4.33	o	4.11.5	o	*6.3	
*1.32	o	4.34	x	4.11.6	o	6.31	-
*1.33	o	4.35	x			6.32	-
1.34	x	4.4		4.12		6.33	-
1.4		4.41	o	4.12.1	o	6.34	-
1.41	10	4.42	0	4.12.2	o		
*1.42		4.43	x	4.12.3	o	6.4	
1.5	55	4.44	o	4.12.4	o	6.41	o
		4.45	x	4.12.5	o	6.42	-
*2.1		4.46	o	4.12.6	o	6.43	-
*2.2		4.47	x			6.44	-
*2.3		4.48	o	5.1	x	6.45	-
2.4		4.49	x	5.2		6.46	-
2.41	-			5.21	o		
2.42	-	4.5		5.22	x	6.5	
2.43	-	4.51	5 K - 10 K			6.51	-
2.44	-	4.52	2 K - 5 K	5.3		6.52	x
*2.5		4.53	0,5K - 2,5K	5.31	o	6.53	o
2.51	-	4.6		5.32	x		
2.52	-	4.61	x	5.4		*6.6	
		4.62	-	5.41	x	*6.61	100/ 0
*3.1		4.7		5.42	x	6.62	75/ 25
3.11	-	4.71	5 - 10	5.43	x	6.63	100/ 0
3.12	-	4.72	50	5.44	x	6.64	100/ 0
3.2		4.73	20 - 50	5.45	x	6.65	90/ 10
3.21	x	*4.74	20			*6.66	95/ 5
3.22	x	*4.8	50	5.5		6.67	100/ 0
3.23	x	4.9	x	5.51	o	6.68	-/-
3.24	o	4.91	-	5.52	x	6.69	100/ 0
3.3		4.92	-	5.6		6.70	100/ 0
3.31	x	4.10		5.61	x	*6.71	-/-
3.32	o	4.10.1	o	5.62	x	6.72	-/-
3.33	o	4.10.2	o	5.63	x	6.73	-/-
3.34	o	4.10.3	o	5.64	x	6.74	-/-
3.4	x	4.10.4	o	5.65	x	6.75	-/-

*1.42 - 4.91

Control networks, large scale mapping, legal survey, cadastre, land property registration, land information systems in 37 countries and states around the world	Prof. Dr. H.J. Matthias Federal Institute of Technology Dept. of Geodesy and Photogrammetry CH - 8093 Zurich

Continent	Country	State, District	Informant	NE
ASIA	**Turkey**		Erol Köktürk	**TR**

1. Triangulation of lowest order is 4th order

1.21 Instead of granite, blocks of concrete are being used

1.32-33 According to ordinance, it will be possible

1.42 For points of trigonometric networks ± 15 cm

2.1 We have no big scale basemap like e.g. in Germany the "Grundkarte"

2.2-2.3 The topographical map in scale 1:5'000 produced by the General Commissionary of Mapping is completed up to 65 %

2.5 Orthophototechnic is not being applied. Such mappings are realized by the General Commissionary of Mapping on request only. Furthermore, a Turkish private company is cooperating with "Intergraph" to apply this technic for the production of maps of the town of Istanbul; this by order of the municipality of Istanbul.

3.1 According to law, the monumenting of points of property lines is compulsory; but in practice it is not being followed.

4.32 In rural areas photogrammetric methods are applied but not in urban areas (see comment 2.5).

4.74 As we do not yet dispose of numerical legal surveys, such information does not exist yet. 20 cm is due to the accuracy of drawing of maps in scale 1:1000; the latter has been the standard method.

4.8 These values are an average for rural and urban areas.

6.22 In the sense of "technical school/college", there exists a 2-year vocational training college with practical and theoretical courses.

6.3 We don't dispose of reliable dates.

6.6 These answers are estimations.

6.61 In the near future, the private sector will be given more and more competence in this field.

Continent	Country	State, District	Informant	NE
ASIA	**Turkey**		Erol Köktürk	**TR**

6.66 We have a law and ordinances regarding the updating of maps. But in fact, they are hardly followed.

6.71 Efforts are being made to transfer the surveys for legal mapping also to the private sector.

1.42-4.91 There is no specific information about the mean square errors of heights. The kind of interconnection of third and forth order networks is not yet definitely solved.

Continent	Country	State, District	Informant	NE
EUROPE	**U.K.**		Smith, Macdonald	**GB**

*1.1	0 - 2	*4.1	-	4.10.5	o	6.1	o		
1.2		4.2		4.10.6	o				
1.21	x	4.21	-			6.2			
1.22	x	4.22	-	4.11		6.21	x		
1.23	x	4.23	-	4.11.1	o	6.22	x		
1.24	x	4.3		4.11.2	o	6.23	-		
1.25	x	4.31	-	4.11.3	o	6.24	-		
1.3		4.32	-	4.11.4	o				
1.31	-	4.33	-	4.11.5	o	6.3			
1.32	-	4.34	-	4.11.6	o	6.31	-		
1.33	x	4.35	-			6.32	-		
1.34	x	4.4		4.12		6.33	-		
1.4		4.41	-	4.12.1	o	6.34	-		
*1.41	5	4.42	-	4.12.2	o				
*1.42	-	4.43	-	4.12.3	o	6.4			
1.5	62	4.44	-	4.12.4	o	6.41	o		
		4.45	-	4.12.5	o	6.42	-		
2.1	x	4.46	-	4.12.6	o	6.43	-		
*2.2	100	4.47	-			6.44	-		
*2.3	10K / 2,5K	4.48	-	5.1	x	6.45	-		
2.4		4.49	-	5.2		6.46	-		
2.41	x			5.21	-				
2.42	x	4.5		5.22	x	6.5			
2.43	o	4.51	-			*6.51	-		
2.44	x	4.52	-	5.3		*6.52	-		
*2.5		4.53	-	5.31	o	*6.53	-		
2.51	o	4.6		5.32	x				
2.52	o	4.61	-	5.4		6.6			
		4.62	-	*5.41	x	6.61	100/	0	
3.1		4.7		*5.42	x	6.62	100/	0	
3.11	o	4.71	-	5.43	x	6.63	100/	0	
3.12	o	4.72	-	5.44	x	6.64	100/	0	
3.2		4.73	-	5.45	x , partly	6.65	100/	0	
3.21	o	4.74	-			*6.66	100/	0	
3.22	o	4.8	-	5.5		*6.67	-		
3.23	o	4.9		*5.51	x	*6.68	-		
3.24	o	4.91	-	*5.52	x	*6.69	-		
*3.3		4.92	-	*5.6		*6.70	-		
3.31	o	4.10		5.61	x	*6.71	-		
3.32	o	4.10.1	o	5.62	-	*6.72	-		
3.33	o	4.10.2	o	*5.63	x	*6.73	100/	0	
3.34	o	4.10.3	o	*5.64	x	*6.74	100/	0	
3.4	o	4.10.4	o	*5.65	x	*6.75	100/	0	

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Continent	Country	State, District	Informant	NE
EUROPE	**U.K.**		Smith, Macdonald	**GB**

1.1 Lowest order: 4th

1.41 Relative positional accuracy

1.42 Lowest order not heighted

2.2 Some sheets still published at 1:10'560

2.3 Partial additional coverage at 1:2'500 and 1:1'250 (normal 1:10'000 or 1:2'500)

2.5 Under investigation

3.3 Not applicable - no marking

4.1 No cadastral surveys of the sort implied here are required by law in U.K.

5.41 Public restrictions of ownership. Limitation on the powers of certain classes of registered proprietors, such as charities, imposed by statute are reflected in the register. The restrictions imposed concerning the user of land by the Town and Country Planning Acts are not shown in the land register as they constitute overriding interests (see 5.6 below) and are instead protected in the register of local land charges held by the appropriate local authority.

5.42 Easements. Easements cannot be registered separately but only in conjunction with the land benefiting thereby.

5.51 5.52 In certain areas of England and Wales. Registration of title is compulsory on sale in areas designated from time to time by Government order. In those areas land may also be registered voluntarily, i.e., otherwise than on sale. Voluntary registration is not permitted in non-compulsory areas except to a limited extend. Sales of public sector dwellings to sitting tenants are, however, compulsorily registrable wherever they are situated. Once a title is registered subsequent dispositions have also to be registered.

5.6 The majority of third party rights can be protected on the register and, if they are not so protected, a purchaser of the

Continent	Country	State, District	Informant	NE
EUROPE	**U.K.**		Smith,Macdonald	**GB**

land will take free from them. There are, however, a number of interests, known as "overriding interests", e.g., leases for not more than 21 years, which cannot be protected in the register. An intending purchaser must satisfy himself, by his own enquiries, whether such interests exist.

5.63 Generally speaking, a registered title is indefeasible, although it is subject to the operation of certain particular statutes, e.g., those relating to bankruptcy and adverse possession. The Registrar has a power to rectify a register but this is seldom exercised against a registered proprietor who is in actual possession of the land.

5.64 The state; registered titles are guaranteed by the State and in the case of an error the alternative remedies of rectification or indemnity are available. The extent of the guarantee is governed by the class of title with which the land is registered; absolute title gives the fullest guarantee whilst the guarantee under a possessory title covers only the period of registration.

5.65 In so far as they may be considered to be cadastral maps.

6.51-6.53 Insignificant amount done if any at all.

6.66 Some private contracting out at 1:2'500, 1:1'250; < 1%

6.67-6.69 Not required by law.

6.73-6.75 No register based on a numerical cadastre but the Land Registry is entirely a Govt. organisation.

6.70-6.72 None in operation.

Continent	Country	State, District	Informant	NE
N.AMERICA	**USA**	California	F.D.Uzes	**US**

*1.1	4 - 5	*4.1	-	4.10.5	o	6.1	x
*1.2		4.2		4.10.6	o		
1.21	x	4.21	o			6.2	
1.22	x	4.22	o	*4.11		6.21	x
1.23	x	4.23	o	4.11.1	-	6.22	x
1.24	x	4.3		4.11.2	-	6.23	x
1.25	x	4.31	o	4.11.3	-	6.24	x
1.3		4.32	o	4.11.4	-		
1.31	x	4.33	o	4.11.5	-	6.3	
1.32	x	4.34	o	4.11.6	-	6.31	unknown
1.33	x	4.35	o			6.32	unknown
1.34	x	4.4		*4.12		6.33	unknown
1.4		4.41	o	4.12.1	-	6.34	unknown
*1.41	-	4.42	-	4.12.2	-		
*1.42	-	4.43	o	4.12.3	-	6.4	
1.5	unknown	4.44	o	4.12.4	-	6.41	x
		4.45	x	4.12.5	-	6.42	o
*2.1	-	4.46	o	4.12.6	-	6.43	o
2.2	100	4.47	o			6.44	x
2.3	62,5K	4.48	o	*5.1	x	6.45	x
2.4		4.49	o	5.2		6.46	o
2.41	o			5.21	o		
2.42	o	*4.5		5.22	x	6.5	
2.43	o	4.51	-			6.51	o
2.44	x	4.52	-	5.3		6.52	x
2.5		4.53	-	5.31	x	6.53	o
2.51	o	4.6		5.32	o		
2.52	o	*4.61	x	5.4		6.6	
		4.62	o	5.41	x	6.61	-/-
3.1		4.7		5.42	x	6.62	-/-
3.11	o	*4.71	-	5.43	x	6.63	-/-
3.12	x	4.72	no standards	5.44	x	6.64	-/-
3.2		4.73	no standards	5.45	x	6.65	-/-
3.21	x	*4.74	-			6.66	-/-
3.22	x	4.8	unknown	5.5		6.67	-/-
3.23	o	4.9		5.51	x	6.68	-/-
3.24	o	4.91	o	5.52	o	6.69	-/-
3.3		4.92	-	5.6		6.70	-/-
3.31	x	4.10		5.61	x	6.71	-/-
3.32	x	4.10.1	o	5.62	x	6.72	-/-
3.33	x	4.10.2	o	5.63	x	6.73	-/-
3.34	x	4.10.3	o	*5.64	-	6.74	-/-
3.4	x	4.10.4	o	5.65	o	6.75	-/-

Control networks, large scale mapping, legal survey, cadastre, land property registration, land information systems in 37 countries and states around the world	Prof. Dr. H.J. Matthias Federal Institute of Technology Dept. of Geodesy and Photogrammetry CH - 8093 Zurich

Continent	Country	State, District	Informant	NE
N.AMERICA	**USA**	California	F.D.Uzes	**US**

1.1 Most of the triangulation work of this department is of 2nd order accuracy.

1.2 a) Iron pipes, b) wooden post with nail and tag.

1.41 3rd order class II accuracy; 1 part in 5'000.

1.42 3rd order levelling 2.0 mm$\sqrt{K}$; K is the distance leveled in miles.

2.1 Scale 1:62'500 or 1:24'000

4.1 Density as needed.

4.5 No requirements. Scale depends on amount of details to be shown.

4.61 Not all surveys are conformal projection.

4.71 Error of closure: 1:5'000.

4.74 Error of closure: 1:20'000.

4.11.0-4.12.0 Land information is kept by title companies who dispense the information and charge a fee for use of their title records.

5.1 Official records of the county recorder

5.64 That depends on the circumstances and on who caused the faulty registration.

Continent	Country	State, District	Informant	NE
N.AMERICA	**USA**	North Carolina	D.P.Holloway	**US**

*1.1	0,1	*4.1	-	4.10.5	x	6.1	x
*1.2		4.2		4.10.6	x		
1.21	x	4.21	x			6.2	
1.22	o	4.22	o	4.11		6.21	x
1.23	x	4.23	o	4.11.1	x	6.22	x
1.24	x	4.3		4.11.2	o	6.23	x
1.25	x , < 1/2%	4.31	o	4.11.3	x	6.24	o
1.3		4.32	x	4.11.4	x		
1.31	o	4.33	x	4.11.5	x	*6.3	
1.32	o	4.34	o	4.11.6	x	6.31	10
1.33	o	4.35	o			6.32	20
1.34	x	4.4		4.12		6.33	70
1.4		4.41	o	4.12.1	x	6.34	0
*1.41	-	4.42	0	4.12.2	o		
*1.42	-	4.43	x	4.12.3	x	6.4	
*1.5	100	4.44	x	4.12.4	x	6.41	x
		4.45	x	4.12.5	x	6.42	x
2.1	x	4.46	-	4.12.6	x	6.43	x
2.2	40	4.47	-			6.44	x
*2.3	2,4K	4.48	-	5.1	x	6.45	x
2.4		4.49	-	*5.2		6.46	x
2.41	x			5.21	x		
2.42	x	*4.5		5.22	x	6.5	
2.43	o	4.51	4,8K			6.51	-
2.44	o	4.52	2,4K	5.3		6.52	-
2.5		4.53	1,2K	5.31	x	6.53	-
2.51	o	4.6		5.32	x		
2.52	x	4.61	x	5.4		6.6	
		4.62	o	5.41	x	6.61	-/-
3.1		4.7		5.42	x	6.62	-/-
3.11	o	4.71	-	5.43	x	6.63	-/-
3.12	x	4.72	-	5.44	x	6.64	-/-
3.2		4.73	-	5.45	x	6.65	-/-
3.21	o	4.74	-			6.66	-/-
*3.22	x	4.8	40	5.5		6.67	-/-
3.23	o	4.9		5.51	x	6.68	-/-
3.24	o	4.91	x	5.52	o	6.69	-/-
3.3		*4.92	-	5.6		6.70	-/-
3.31	x	4.10		*5.61	o	6.71	-/-
3.32	x	4.10.1	o	*5.62	x	6.72	-/-
3.33	x	4.10.2	o	*5.63	x	6.73	-/-
3.34	x	4.10.3	x	*5.64	x	6.74	-/-
3.4	x	4.10.4	x	*5.65	o	6.75	-/-

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Continent	Country	State, District	Informant	NE
N.AMERICA	**USA**	North Carolina	D.P.Holloway	**US**

1.1 One per three square miles, located along traverse lines spaced approx. 1/2 mile apart.

1.2 90 % or more are concrete monuments with metal discs.

1.41 For horizontal traverse - 1:20'000 at a spacing of 1/2 mile.

1.42 For level lines - $6mm\sqrt{km}$ computed between tie points.

1.5 Some monumentation exists in all counties; monument density is much greater in some counties than others.

2.3 Rural: 1:4'800 ; suburban: 1:2'400 ; urban: 1:1'200

3.22 A small number (approx. 10 %) of our counties have surveyed and permanently marked their boundaries.

4.1 Iron pipes or pins are normally set at property corners.

4.5 Maps are being developed under the direction of a statewide program. Also, 1:24'000 maps are available from federal government for the entire state.

4.92 In parts of the coastal counties, 10 - $12mm\sqrt{km}$.

5.2 Legal purpose is primary aim, taxing purpose is secondary.

5.61 Unregistered documents are still binding between the parties to the document, but not binding (effective) against "third persons" unless such a third person has been actual notice of the document.

5.62 A registered document is assumed on its face to be valid; however, it can be legally challenged and proved incorrect.

5.63 Yes, for the most part - there could be some exceptions. No inherent protection by government; purchaser would have to sue to protect rights or obtain money damages.

5.64 The Register of Deeds for the county where the document was registered.

Continent	Country	State, District	Informant	NE
N.AMERICA	**USA**	North Carolina	D.P.Holloway	**US**

5.65 Plats are recorded as part of the registry, and are used in compilation of the cadastral maps.

6.3 These figures are purely an estimate.

Continent	Country	State, District	Informant	NE
N.AMERICA	**USA**	Bur.Land Managem.	B.W.Hostrop	**US**

*1.1	0,01 - 0,015	*4.1	-	4.10.5	x	6.1	-
1.2		4.2		4.10.6	x		
*1.21	x	4.21	x			6.2	
1.22	o	4.22	o	4.11		*6.21	x
1.23	x	4.23	x	4.11.1	x	6.22	x
1.24	o	*4.3		4.11.2	o	6.23	x
1.25	o	4.31	o	4.11.3	o	6.24	x
1.3		4.32	o	4.11.4	o		
1.31	o	4.33	o	4.11.5	x	*6.3	
1.32	o	4.34	o	4.11.6	o	6.31	70
1.33	o	4.35	x			6.32	5
1.34	x	*4.4		4.12		6.33	10
1.4		*4.41	-	4.12.1	o	6.34	15
1.41	40	*4.42	-	4.12.2	o		
1.42	-	*4.43	-	4.12.3	o	6.4	
1.5	90	*4.44	-	4.12.4	o	6.41	x
		4.45	x	4.12.5	x	*6.42	o
2.1	x	4.46	x	4.12.6	o	*6.43	x
2.2	80	4.47	o			*6.44	x
2.3	24K	4.48	x	*5.1	x	*6.45	x
2.4		4.49	o	5.2		*6.46	o
2.41	x			5.21	x		
2.42	x	*4.5		5.22	o	6.5	
2.43	o	4.51	0,5K - 50K			*6.51	x
2.44	x	4.52	0,5K - 50K	5.3		*6.52	-
2.5		4.53	0,1K - 1K	5.31	x	*6.53	x
2.51	o	4.6		5.32	o		
2.52	x	4.61	o	5.4		6.6	
		4.62	x	5.41	x	*6.61	-/-
3.1		4.7		5.42	x	*6.62	-/-
*3.11	x	*4.71	-	5.43	o	*6.63	-/-
3.12	o	*4.72	-	5.44	x	*6.64	-/-
3.2		*4.73	-	5.45	x	*6.65	-/-
3.21	x	*4.74	-			*6.66	-/-
3.22	x	4.8	90	5.5		6.67	100/ 0
3.23	x	4.9		5.51	o	6.68	100/ 0
3.24	o	4.91	o	5.52	x	6.69	80/ 20
3.3		4.92	-	5.6		6.70	-/-
3.31	x	4.10		5.61	x	6.71	-/-
3.32	x	4.10.1	x	5.62	o	6.72	-/-
3.33	x	4.10.2	o	5.63	o	6.73	50/ 50
3.34	x	4.10.3	x	*5.64	o	6.74	50/ 50
3.4	x	4.10.4	x	*5.65	x	6.75	50/ 50

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Continent	Country	State, District	Informant	NE
N.AMERICA	**USA**	Bur.Land Managem.	B.W.Hostrop	**US**

1.1 Typical scale in Alaska.

1.21 Regulation pipe monuments.

3.11 Ferderal law for public domain states. State law for colony states and closed P.D. states.

4.1 Control points are irrelevant to property surveys in the United States.

4.3 Survey techniques: transit-chain, theodolite-EDM, total station, laser range pole, intertial surveyor, Doppler receivers.

4.4 Evidence on dependent resurvey. Creation by original survey.

4.41-4.44 These are topographic surveys.

4.5 For cadastral survey plats.

4.71-4.74 Not required. Typically one corner per township (36 square miles) is given a Doppler position.

5.1 County tax cadaster.

5.64 No liability exists.

5.65 As graphic guide only, no legal effect except as an index. The cadastral survey plat (by federal or state surveyor) upon registration (filing) is the legal instrument that creates the property and its boundaries.

6.21 Degree, 4 years in surveying required

6.3 Answered for federal surveyors only - not for those licensed by the state.

6.42-6.46 (It is not sure whether the question was properly understood)

6.51-6.52 For 30 P.D. states off-shore and all Indian and federal lands in all states.

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N.AMERICA	**USA**	Bur.Land Managem.	B.W.Hostrop	**US**

6.53 For private property in all 50 states

6.61-6.63 Not a part of cadastral survey

6.64-6.66 Federal does all for government and Indian lands. Private does
6.70-6.72 all for private (after created by federal surveyor)

Continent	Country	State, District	Informant	NE
N.AMERICA	**USA**	GeologicalSurvey	Ir.C.J.Fry	**US**

1.1	0,1 - 1	*4.1	0,1 - 4	4.10.5	x	6.1	o
1.2		4.2		4.10.6	o		
1.21	x	*4.21	x			6.2	
1.22	x	*4.22	x	4.11		6.21	x
1.23	x	*4.23	x	4.11.1	o	6.22	x
1.24	x	*4.3		4.11.2	o	6.23	x
1.25	x	4.31	x	4.11.3	o	6.24	x
1.3		4.32	x	4.11.4	o		
1.31	x	4.33	x	4.11.5	x	*6.3	
1.32	x	4.34	x	4.11.6	o	6.31	35
1.33	x	4.35	x			6.32	35
1.34	x	4.4		4.12		6.33	90
1.4		4.41	x	4.12.1	x	6.34	30
1.41	1 - 2	4.42	0	4.12.2	o		
1.42	2 - 4	4.43	x	4.12.3	o	6.4	
1.5	90	4.44	o	4.12.4	x	6.41	x
		*4.45	x	4.12.5	x	6.42	o
*2.1	x	4.46	o	4.12.6	o	6.43	o
2.2	65	4.47	o			6.44	x
2.3	24K	4.48	o	5.1	x	6.45	x
2.4		4.49	x	5.2		6.46	o
2.41	x			5.21	o		
2.42	x	*4.5		5.22	x	*6.5	
*2.43	o	4.51	24K - 5 K			6.51	o
2.44	x	4.52	24K - 2,5K	5.3		6.52	x
2.5		4.53	5K - 1 K	5.31	x	6.53	x
2.51	x	4.6		5.32	o		
2.52	o	4.61	x	5.4		6.6	
		4.62	o	5.41	x	6.61	100/ 0
3.1		4.7		5.42	x	6.62	90/ 10
*3.11	x	4.71	2 - 50	5.43	x	6.63	100/ 0
3.12	o	4.72	20 - 50	5.44	x	6.64	90/ 10
3.2		4.73	10 - 20	*5.45	x	6.65	90/ 10
*3.21	x	4.74	3 - 10			6.66	90/ 10
3.22	x	*4.8	90	5.5		6.67	50/ 50
3.23	x	4.9		5.51	o	6.68	30/ 70
3.24	x , partly	4.91	x	5.52	x	6.69	20/ 80
3.3		4.92	10 - 100	5.6		6.70	90/ 10
3.31	x	*4.10		5.61	x	6.71	80/ 20
3.32	x	4.10.1	o	5.62	x	6.72	90/ 10
3.33	x	4.10.2	o	5.63	x	6.73	90/ 10
3.34	x	4.10.3	o	*5.64	o	6.74	90/ 10
*3.4	x	4.10.4	o	*5.65	o	6.75	100/ 0

Control networks, large scale mapping, legal survey, cadastre, land property registration, land information systems in 37 countries and states around the world	Prof. Dr. H.J. Matthias Federal Institute of Technology Dept. of Geodesy and Photogrammetry CH - 8093 Zurich

Continent	Country	State, District	Informant	NE
N.AMERICA	**USA**	GeologicalSurvey	Ir.C.J.Fry	**US**

2.1 1:24'000; not larger scales

2.43 Only where property lines are coincident with natural features or the public land survey system

3.11 Many have been lost or destroyed over the years; these are not usually replaced unless property is transferred or in case of dispute

3.21 Many are defined by natural features and are not otherwise marked

3.4 But seldom enforced unless an act of vandalism was committed

4.1 There is no official cadaster; therefore cadastral surveying is property boundary surveying. Ties to the geodetic network are not legally required.

4.21-4.23 Surveying is done to establish boundaries on the ground. A plat is a by-product. The county often produces a "numeric cadaster" to facilitate record keeping.

4.3 All methods are used to prepare plats. Currently only classical land surveying methods are used to legally establish boundaries.

4.45 This is the primary purpose

4.5 Maps are produced for tax purposes, rather than legal purposes.

4.8 But this only means that properties have been surveyed at some time. Accuracy and marking may be unacceptable by current standards.

4.10 See National Research Council report, titled "Need for a Multi-purpose Cadaster" 1980

5.45 Not all inclusive (may not include zoning)

5.64 Liability will be decided by the Courts. It may be the surveyor, the county or previous land owner who is at fault.

5.65 In public survey system states, i.e. (those others than the 13 original colonies) a cadastral plat does exist.

Continent	Country	State, District	Informant	NE
N.AMERICA	**USA**	GeologicalSurvey	Ir.C.J.Fry	**US**

6.3 ACSM has some estimates, but no actual figures are available. It is not clear why these should total 100 %, as in the example. A person could have studied at a university and also passed a higher official test. U, I and B should total 100 %.

6.5 All public land states were surveyed by government. New and retracement surveys on public lands are still done by government.

Continent	Country	State, District	Informant	NE
EUROPE	**Yugoslavia**		Dir.M.Naprudnik	**YU**

1.1	1 - 5	4.1	0,1 - 1	4.10.5	x	6.1	o
*1.2		4.2		4.10.6	o		
1.21	x	4.21	x			6.2	
1.22	x	4.22	x	4.11		6.21	x
1.23	x	4.23	x	4.11.1	o	6.22	x
1.24	x	4.3		4.11.2	o	6.23	x
1.25	x	4.31	x	4.11.3	o	6.24	x
1.3		4.32	x	4.11.4	o		
1.31	x	4.33	x	4.11.5	x	6.3	
1.32	x	4.34	x	4.11.6	o	6.31	25
1.33	x	4.35	x			6.32	15
1.34	o	4.4		4.12		6.33	50
1.4		4.41	x	4.12.1	o	6.34	10
1.41	2 - 4	4.42	12	4.12.2	o		
1.42	3 - 6	4.43	x	4.12.3	o	6.4	
1.5	94	4.44	x	4.12.4	o	6.41	x
		4.45	x	4.12.5	o	6.42	x
2.1	x , partly	4.46	o	4.12.6	o	6.43	o
2.2	30	4.47	o			6.44	x
2.3	5K / 10K	4.48	o	5.1	x	6.45	x
2.4		4.49	o	5.2		6.46	x
2.41	x			5.21	x		
2.42	x	4.5		5.22	o	6.5	
2.43	o	4.51	5,76K - 2,88K			6.51	x
2.44	x	4.52	2,88K - 1 K	5.3		6.52	o
2.5		4.53	2,5 K - 0,5 K	5.31	o	6.53	o
2.51	o	4.6		5.32	x		
2.52	o	4.61	x	5.4		6.6	
		4.62	o	5.41	x	6.61	100/ 0
3.1		4.7		5.42	x	6.62	100/ 0
3.11	x	4.71	4	5.43	x	6.63	100/ 0
3.12	o	4.72	20 - 30	5.44	x	6.64	100/ 0
3.2		4.73	10 - 20	5.45	x	6.65	100/ 0
3.21	x	4.74	5 - 10			6.66	100/ 0
3.22	o	4.8	40	5.5		6.67	100/ 0
3.23	o	4.9		5.51	x	6.68	100/ 0
3.24	o	4.91	o	5.52	x , partly	6.69	100/ 0
3.3		4.92	10 - 20	5.6		6.70	100/ 0
3.31	x	4.10		5.61	o	6.71	100/ 0
3.32	x	4.10.1	o	5.62	x	6.72	96/ 4
3.33	x	4.10.2	o	5.63	x	6.73	100/ 0
3.34	x	4.10.3	o	5.64	-	6.74	100/ 0
3.4	x	4.10.4	x	5.65	x	6.75	100/ 0

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EUROPE	**Yugoslavia**		Dir.M.Naprudnik	**YU**

1.2 Reinforced concrete

Conclusion

The author would like to express his gratitude to all the contributors in the various countries for their most valuable co-operation. Maybe, such information collecting campaigns could be repeated from time to time in order to complete and update this zero-inquiry.

Schluss

Allen Informanten in den verschiedenen Ländern dankt der Autor für ihre wertvolle Mitarbeit. Vielleicht eignet sich die hier vorgelegte Arbeit dazu, von Zeit zu Zeit wiederholt und dabei aufdatiert zu werden.

Conclusion

L'auteur remercie à tous les informateurs des pays divers de leur collaboration précieuse. Peut-être serait-il recommandable de répéter cette enquête de temps en temps et ainsi de la mettre à jour et de la compléter.