Topic Index

Chapter 1

a

agricultural products, 5
- pigs, 5
- sheep, 5
- tobacco, 5

c

Chengdu-Kunming Railway, 3,4,5

e

environment, 1,2,4
- monsoon climate, 4
- precipitation, 4
- southern subtropics, 4

f

fault depressions, 3

g

granary of southern Sichuan, 4

geo-environmental evaluation, 1
- environmental protection, 1,2
- hazard mitigation, 1,2,4

h

Hengduan Mountains, 1,2,6

i

industrial products, 5
- cement, 5
- coal, 5
- coke, 5
- iron ore, 5
- iron steel, 5
- rolled steel, 5
- sugar, 5
- vanadic power, 5
- wood, 5

n

natural hazards, 4
- debris flow, 4
- earthquake, 4
- landslide, 4
- mud flow, 4
- siltation, 7
- soil erosion, 7

natural resources, 1,2
- hydropower energy, 2,6,7
- land resources, 7
- mineral resources, 2,4,6
  - copper, 4,6
  - gallium, 7
  - lead, 4
  - titanium, 4,7
  - vanadium, 4,7
  - vanado-titano-magnetite, 4,5
  - zinc, 4,6

p

Paleozoic rift process, 4

Panxi region, 1,2,3

Panzhihua steel plant, 4

planned engineering projects, 1

production pattern, 6,7

q
Qinghai-Tibet Plateau, 6
Quaternary alluvial deposits, 4

r
rivers
Anninghe, 3
Jinshajiang, 3,6,7
Yalongjiang, 3

s
socioeconomic situation, 4,5
Southwestern China, 3,6,7
strategic planning of integrated development, 1

y
Yangtze river basin, 7
Yi (minority nationality), 7

Chapter 2

a
amplitude of subsidence36, 38, 39
anisotropy, 24
argillation, 19

b
basalt, 13,14,16
basin, 9,10,11
Sichuan, 9
Yanyuan, 11

c
claystone, 15
climate, 10,11
annual average temperature, 11
annual rainfall, 11
annual thermal radiation, 11
coal seams, 15,16,17
conglomerate, 15,16,18
continental, 16,22
clastic formation, 22,24
rifting, 16

d
deformation, 20,21
compressional, 29
crustal, 33
deposits, 10,14,15
alluvial, 14
carbonate, 13,16
clastic, 13,16
iron ore, 17
lacustrine, 14
salt, 16

echelon arrangement, 30
epoch, 11,20
Eocene, 14,15
Holocene, 14
Indo-Chinese, 11
Oligocene, 14,15
Pleistocene, 14,15
Pliocene, 39
era, 14
Cenozoic, 14,30,31
Mesozoic, 22,24
Paleozoic, 13,16
Proterozoic, 19,21

f
facies, 17,18,20
epicontinental, 17
littoral, 15,17
marine, 15,18,20
fault, 13,14,16
active, 33,36
depression, 14,30,31
Yanyuan, 14,30
lithospheric, 36
movement, 14,36
systems, 27,30
feldspar, 13,15,17
fold system, 29,32

g
geomorphology, 10
geosyncline trough, 22
gneiss, 21,24,27
gneissosity, 27
graben, 36,38
granite, 11,21,22
granodiorite, 19,22,23
groundwater, 13,17,18
group, 11,13,16
Proterozoic Yanbian, 19
Sinian, 14,18,19
gypsum, 16,26

h
haloids, 16
hematite lenses, 15
Hengduan Mountains, 9,36
hypabyssal, 20

i
illite, 15
interbedding, 13,18
intercalations, 16,17,19

l
lava, 16,20
    brachiated, 16
limestone, 13,14,15
lithology, 25

m
marble, 13,23,24
    dolomitic, 13
marl, 13,15,16
metamorphism, 21,27,30
    auto, 21
    contact thermal, 21
    dynamo, 21
montmorillonite, 15
mudstone, 16,17,18
mylonitised, 21

n
neotectonic movements, 33

o
orogeny, 27,30,38
    Hercynian, 38
    Indo-Sinian, 30,38

p
period, 9,13,16
    Cambrian, 19
    Cretaceous,24,26,29
    Devonian, 14,17,19
    Jurassic, 22,24,25
    Ordovician, 13,14,18
    Permian, 16,17,18
    Quaternary, 33,36,38
    Silurian, 14,18,19
    Tertiary, 9
    Triassic, 13,16,22
phyllite, 13,14,21
plane, 15,18,20
    bedding, 15,29
    slide, 18
porphyritic, 16,18,21
process, 9,27
    basement and cover development, 27
    Himalayan orogenic, 9
proluvial, 39

q
quartz, 13,14,15
    quartzdiorite, 11,22,23
    quartzite, 13,17,24
Qinghai - Tibetan Plateau, 9

r
rivers
    Anninghe, 9,10,11
    Jinshajiang, 9,10,40
    Yalongjiang, 9,10,22
river valley, 9,11
    Jinshajiang, 9,11
rock, 11,13,14
    acid, 22
    basic, 19,23,32
    carbonate, 13,16,17
    clastic, 13,15,17
    igneous, 22,23,32
    intrusive, 19,22,24
    magmatic, 22
    metamorphic, 11,13,14
    siliceous, 14,17,18
    ultrabasic, 18,19,23
    volcanic, 20,30
rock formation, 11,18,20

s
sandstone, 13,14,15
schist, 13,14,19
    chlorotic, 13
    mica-quartz, 14
    sericite, 14,23
schistosity, 21,27,29
sedimentary, 25,29,30
    cover, 29,30
    discontinuities, 25
series, 13,15,17
    Beishan, 13
    Hongyiezi, 15
    Leping, 17

Liangshan, 17
Maokou, 17
Qixia, 17
Shemulong, 13
Yantan, 13
Yanyuan, 15
shale, 15,16,17
shear strength, 15
silt, 18,19,20
siltstone, 13,15,16
slate, 13,14,21
strata, 14,17,18
Carboniferous, 14,17,19
Xigeda, 15,38
stratigraphic units, 13,18
structure, 14,16,18
amygdaloidal, 16
water conduits, 14

t
tectonic, 21,23,25
deformation, 23,25
evolution, 23,27
fault zone, 25,26,36
fractures, 30,32
thermal fluorescence method, 39,40
tuff, 16,20
tuffaceous breccia, 16,20

z
zone, 9,17,26
palaeo-weathered, 17
transitional, 9
water-bearing, 26

Chapter 3

b
bending and buckling of thin-layered schists, 49
blocks, 41,43,44
tectonic, 43
terrain, 41,43,44
stable, 43,44
sub-stable faulted, 44
unstable faulted, 44,47

c
cohesion, 54,55
crustal strain energy, 44,46,47
cyclicity, 48

d
debris fans, 52
debris flow, 47,48,49
active, 47,49,52
intermittent, 48
regressive, 48
secondary, 52,53
debris gullies, 47,49,50

e
epicentre, 41,43
epoch, 46,47,52
Pleistocene, 46,47,52
Pliocene, 44
era
Cenozoic, 43

f
fault, 41,43,44
depression, 43,46,47
Yanyuan, 43
regional, 41
fractured igneous bodies, 53
frictional angles, 54,55

g
geomorphological factor, 48
graben, 47,52
gravitational gradient, 46,47
gypsum, 53,54

l
lithogenetic condition, 53

m
magnitude, 41,43,44
major flow lines, 52
mass movement, 47,48,49
slope, 47,48,49
surface, 47,49
micro-schistic, 54

n
neotectonic differential activities, 48,52

p
pattern of micro-seismic distribution, 41
period, 48,49,52
Cretaceous, 53
Jurassic, 48,49
Permian, 52
Quaternary, 46,47,48
Triassic, 48,49,53
plane, 43,50,52
bedding, 50
sliding, 52
structural, 43,54
basement faults, 43,44
crustal faults, 43,46
lithospheric faults, 43,46
overburden faults, 43,44,54
tectonic zones, 43

r
rainfall periods, 48
rapid weathering, 54
river valleys, 49,52,53

s
seismicity, 41,43,48
basic seismic intensity, 43,44,46
regional, 41
seismic belt, 43
sensitive geological formations, 53
rapidly weathered rocks, 53,54
sedimentary swelling rocks, 53
soluble rocks, 53
shear strength, 54
slope evolution, 50
spatial distribution, 41,47,48
stress fields, 41
structure, 44,46
mosaic, 44,46
subsidence, 46,50
sulphate, 53,54
hydration, 54
unions, 54
swarm, 43,47
landslides, 47
shocks, 43

t
tectonic stability zonation, 43
theory of geomechanics, 43
tributaries, 49,52,53

u
uniaxial compressive strength, 55
uplift, 44,46,47
intensive, 49,52
uniform, 44

w
weathered accumulations, 54

x
Xigeda, 52,53,54
series, 53,54,55
strata, 52

z
zone, 43,48,49
fault, 43,48,49
relative uplift, 52
seismic, 43
subsidising, 46
successively active, 52

Chapter 4

a
average runoff, 64

c
conglomerate, 60

d
deposits, 57,59,60
copper, 57,59,60
gold, 57,60,61
iron, 57,59
lead, 57,60
nickel, 57,59,60
tin, 57,60
zinc, 57,60
metallic mineral, 57,59,60
non-metallic, 61
vanado-titano-magnetite, 57,59
dyke, 61
granite, 61
syenite, 61

e

electrical capacity, 65

elements, 57,59,60
metallic, 60
rare and dispersed, 60,61
rare earth, 57,60,61
era, 57
Paleozoic, 57

i
intrusive mass, 60

l
land use, 62,63

m
magma, 59,60
basic, 59,60
ultrabasic, 59,60
magmatism, 59
masses, 60
copper, 60
contaminated, 60
laminated, 60
massive, 59,61
granite, 59,61
metamorphism, 59
contact, 59,60,61
hydro-thermal, 59,60,61
regional, 59
metasedimentary, 60
monoclinal, 59

o
ore, 59,60,61
body, 59,60,61
strata, 60
origin, 61
alluvial, 61,63
deluvial, 61,64
proluvial, 64

p
period, 57
Cretaceous, 60
Precambrian, 59,60,61
Triassic, 57,62
plateau, 62,64
monsoon, 62
Tibetan, 62
Yunnan, 62
process, 59
metasomatic, 59,61
volcanic, 59

r
resources, 57,58,60
energy, 65
hydropower, 65
land, 62,63,64
deep valleys, 62
high mountain slopes, 62,63,64
middle mountain plateaux, 62,64
mineral, 57,58,60
rock, 61
basic, 61
ultrabasic, 61

s
sedimentary, 60
skarn, 61
system, 59,60,62
Sinian, 59

t
tectonic evolution, 57

v
vertical differentiation, 62

z
zone, 57
paleo-rift, 57

Chapter 5

c
comprehensive use, 70
coordination of principal strategic tasks, 68

d
development of, 67,68,72
higher education, 68,69,72
science, 68,69,72
technology, 68,72
disaster prevention and mitigation, 72,74
dominant development sectors, 68

e
economic complexes, 74,75,76

key industries, 74,78
natural conditions and resources, 74,77
environmental, 72,74
conservation, 72,74
management, 72,74

h
hydrothermal conditions, 74

m
minority nationalities, 67
Yi nationality, 77

o
output, 74,75,76
agricultural, 74,75,76
industrial, 74,75,76

p
paragenetic, 70
project programme, 73
projects, 73
industrial, 73
regulating, 73

r
resource characteristics, 68
resources, 67,68,69
agriculture, 68,69,71
animal husbandry, 71,77
associated minerals, 70
energy, 67,68,69
coal, 69,71,73
hydropower, 67,69,71
forestry, 68,69,71
land, 68,69,71
metallic minerals, 70
iron, 70,73,76
titanium, 70,75
vandium, 70,75
vanado-titano-magnetite, 70,71,72
non-ferrous metallic ore, 70,73,75
non-metallic deposits, 70
rare-earth elements, 70
salt deposits, 70,71,73
steel, 67,70,73

s
secondary link industries, 70
strategic, 67,68,69
goals, 67,71
planning, 67,68
programme, 68,70,74
system, 68,70,72
mining-metallurgical and energy resource, 68
secondary development, 70
support, 69
urban, 72,73

t
traffic engineering, 72
transportation, 69,71,72

u
urban expansion, 72

z
zone, 70
lead-zinc metallogenic, 70
Panxi Paleo-rift metallogenic, 70

Chapter 6

a
aero-remote sensing, 90
alluvial, 95,96,99
fan, 95,96
strata, 96

b
basalt, 89,90,95
micrograin-cryptocrystalline, 90
base, 82,83,87
agricultural, 83
energy, 87
smelting, 82,97
block, 90
faulted, 85,90

c
capacity, 80,87,88
flow, 87
installed, 80,87,88
reservoir, 95
collapse deformations, 96

d
dam, 86,89,90

arch, 89,90
tailing, 86
desertification, 96,97
distribution of runoff, 86

e
effective irrigation rate, 95
electricity yield, 87,88
epicentre, 95
evaporation, 94,96

f
facies, 83
intermountainous lake, 83
fault, 90,92,95
active seismicity-prone, 95
boundary, 90
lithospheric, 90

g
gabbro, 85
geo-environmental assessment, 79,86,88
geostress, 92
gravity irrigation, 95
groundwater table, 102
gullies, 91,99

h
hydrogeology, 86
k
karst, 96

l
landform, 80,83,84
basins, 83,92,94
inter-montane, 92,95,102
gorge, 84,89,95
wide valley, 83,94,95

m
marble, 85,98
measures, 86,91,92
anti-seismic, 95,99,102
environmental improvement, 102
improvement of surface runoff, 99
plantation, 93,94,96
water management, 102
mining methods, 84
open cast, 84,85
underground, 84,86
movement, 95
neotectonic, 95
slope mass, 95

o
overflow, 92

p
pellet weathering, 90
period, 85,89,95
Indo-sinian, 89
Permian, 85,89,95
Sinian, 85,95
Triassic, 96
plan, 79,81,82
regional, 79,86
production, 79
urban construction, 97,98,99
development of transportation and communications, 97
problems, 81,82,83
geo-environmental, 81,82,83
air pollution, 86,102
coal burst, 86
contamination of surface water and groundwater, 86,102
debris flows, 83,85,91
high intensity seismic zone, 82,83
landslides, 83,85,91
rock pressure, 86
sliding of dumps and tailing dams, 86
slope failures, 83
swelling of foundation, 83,96,99
waste dumping, 86
production mode, 93
ecological, 93
structure, 93
traditional, 93
projects, 79,81,82
chemical, 79,81,86
mining-metallurgical, 79,80,81

r
resources, 79,80,81
agricultural, 83,92,93
anthracite, 81,86
cement, 98
chemical, 81
coal , 80,81,82

metallic resources, 81
iron ore, 80
steel, 79,80,81
titanium, 79,81
vanadium, 79,81
vanado-titano-magnetite, 79,81,84
mineral deposits, 79,80,81
timber, 88,98
water resources, 79,83
hydropower, 86,87,88
rock, 90,95
clastic, 90
metamorphic, 95
runoff, 95,99
solid, 95
surface, 99

s
salinisation, 96,97
schist, 85
hornblende, 85
seepage, 91,96
seismic intensity, 83,90,99
semi-cemented Xigeda strata, 83,99
siltation, 95
slag, 83
slope stability, 85,99
spatial agriculture, 92,93
storage, 91,95
structure, 86.90
cryptomerous, 90
non-homogeneous, 90
water-tight, 86
syenite, 89,90

w
water conservation, 93,94,95
diversion works, 94,96
irrigation canals, 95,96
key reservoirs, 94
storage projects, 94
water head, 92
water impounding, 90

z
zone, 83,90,91
flow, 91
reservoir, 91
seismic, 83,92,95
shearing, 90

Chapter 7

a
average discharge, 106

c
climate, 105,106
precipitation, 106
conservation of
soil, 107,108
water, 107,108
contamination of
soil, 103,105
water, 103,104,105

d
desertification, 107
drainage area, 106,107,108

e
ecological balance, 103,106,108
excavation , 103,104,105

f
flow capacity, 107

g
geo-environmental management, 103,107
mitigation of natural hazards, 103,108,110
gorge, 106
groundwater, 104,105

I
industries, 103,104,106
chemical, 103,106
mining-metallurgical, 103,106

m
measures, 103,104,105
anti-seismic, 105,109
anti-shock structures, 105
environmental protection, 103,104,105
artificial drainage, 104
control of runoff, 105,107
disposal of waste, 105
reinforcement of slopes, 104,105
treatment of ditches and valleys, 105
tree plantation, 104,107,108
methods, 107
dredging, 107,110
embankment, 107

n
natural hazards, 103,105
debris flows, 105,107,108
secondary debris flows, 104
earthquakes, 105,107,108
erosion, 104,110
floods, 105,107,108
hailstorms, 108
landslides, 104,105,108
rainstorms, 105,108,110
neotectonic movements, 110

p
pollution, 103, 105
air, 104
fog, 104
smoke, 104
water, 104,105

r
reservoir, 107,108
river valley, 105,106,107
runoff, 104,105,106
ground, 104,106
surface, 104,105,106

s
sandbars, 106
slope stability, 103
storage projects, 107,108

u
urban planning, 105

w
water diversion works, 107
water table, 104

z
zone, 104,105,106
N-S seismic, 109
protection, 105